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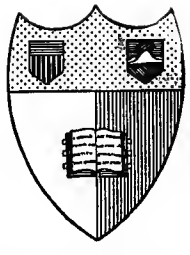

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DETAILS OF

BUILDING CONSTRUCTION

BY

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BOSTON, MASS.

BATES & GUILD COMPANY

1914

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PREFACE.

THE author would have preferred to present this book to the public without a prefatory note, had not some explanations seemed necessary in order to prevent misunderstanding. The work is not the result of a deliberate attempt at book-making, undertaken with "malice prepense," but is the outcome of the efforts made by a teacher of architectural construction to present a part of his subject to his students. The drawings, consisting originally of rough sketches on large sheets of wrapping-paper, were at first used for temporary illustration only; but the results proved so satisfactory that it seemed best to study the work more carefully and to put it into more permanent form for class-room use.

This was undertaken some three years ago, still without thought of publication; and it was only after the first sixteen plates in blue-print form had been used for some time that their favorable reception by students, and by others who learned of them through students, suggested that they might prove useful to workers outside the college class-room. The revision and completion of the work were accordingly undertaken. Two or three of the original plates have been redrawn; but to redraw them all for the sake of uniformity and possible minor improvements would have involved an amount of labor not justified by the advantage gained, and would have necessitated a longer delay in publication than seemed advisable. In method of presentation, therefore, the work still shows to a considerable extent the various stages of its progress through a period of full three years. In other respects the attempt has been made, by means of careful revision in the light of the best criticism available, supplemented by continuous study and independent investigation, to present the best methods employed or recommended in present-day practice.

In scope the work limits itself to presenting only such details, principally in wood, as are in common use in domestic architecture and in smaller public buildings. The subject of framing has been entirely omitted, partly because it has been aptly treated elsewhere, partly because it does not lend itself readily to the method of treatment here chosen. In the matter of design the author wishes to put in a disclaimer. Nothing is further from his intention than an attempt to dictate in a question of design, but it has been necessary to use design in order to show construction. Therefore, while every effort has been made to show only the good in design, it should be borne in mind that the book is a treatise not on that subject but on construction.

In the method of presentation, the inconsistency arising from the fact that the work was so long in a process of becoming, and that its final evolution into book form remained so long unforeseen, has already been mentioned. The exact character of this inconsistency may be seen by comparing the plates treating of windows with those treating of doors. In treating of windows one plate is devoted to a certain type of window, with the corresponding details, then another plate takes up a different type, and so on. When, however, the subject of doors is taken up, one plate is devoted to types of doors, another to details of frames, another to details of panels, etc. For this there was no remedy except the radical one of redrawing the plates; and the case did not seem to warrant recourse to measures so heroic, since it is, after all, an open question as to which method is the better.

The device of lettering the notes on the plates, instead of presenting them separately in the form of text, was of necessity a part of the original idea, which contemplated only separate plates; and when the work of revision was undertaken, it seemed wise to retain the scheme. It is hoped that the obvious advantage of having the notes on the plates in close juxtaposition to the drawings to which they refer will more than compensate for the disadvantages of an enforced brevity so severe as to be almost incompatible with good English, and of an appearance of dogmatism which the writer would have preferred, if possible, to avoid. That the notes must be read in conjunction with the study of the drawings, if the latter are to be fully comprehended, would seem to be a fact so obvious as to require no emphasis, had not some of the criticisms received during the progress of the work revealed the fact that the notes had been neglected, despite the device used for securing their perusal.

In the matter of nomenclature care has been taken to use only such terms as are sanctioned by the authority of the best writers on architecture and building, and to use them accurately, not in the hope of bringing order out of the chaos of architectural terminology, but only in the hope of escaping the accusation of having worse confounded the present deplorable confusion.

The drawings have been carefully prepared after a long, practical experience and with the aid of one of the best libraries in this country, supplemented by a large collection of working drawings from the offices of leading architects. No pains have been spared to free them as far as possible from the taints of local practice; and while not all that is shown is unreservedly recommended, great care has been taken not to include anything that has not the authority of good practice, and that may not fairly be called good construction when the element of cost is considered. Some cheap methods of construction have been shown and recommended as good of their kind. Such, for instance, are the wood sills shown on Plate VI., which have already been subjected to adverse criticism, but which it seemed best, after mature consideration, to retain. The wood sill in other than frame buildings has the same excuse for being as has the shingle roof — it is cheap. It can of course be justified only on the score of expense; but it has the sanction of good practice in sections of the country where cut stone is not easily and cheaply obtainable; it is painted and treated frankly as wood, and has stood the test of time.

It has several times been suggested that the dimensions of parts be figured on the various details throughout the work, but to the author this has seemed entirely too dogmatic a procedure. As the sturdy Pennsylvania farmer builds his house with 3 x 5-inch studs,— if he does not build of stone,— and does not think of extravagance, while the toiling dweller in the cyclone regions of the West builds with 2 x 4-inch studs and wonders if he cannot safely space them 24 inches on the centers, so the $2\frac{1}{2}$ or 3-inch window-sill that is accepted as a matter of course in one section would strike terror to the heart of the builder in the thriftier region where the 2-inch sill is an extravagance. In order to make the drawings, however, it was necessary to show material of definite size and thickness, and the dimensions chosen for the various parts have been made to represent as nearly as possible the average of good practice. As everything has been most carefully drawn to scale, the sizes used can be ascertained to a nicety by simply measuring them on the drawings. The type window, Plate IV., has been pretty fully figured, but beyond this it was felt that figured dimensions would seem to be an attempt at finality that would tend to restrict the liberty of choice and the exercise of individual judgment on the part of designer and constructor, without which there can be no true progress. If the work is to be used simply as a copy-book it must inevitably fail of its purpose, which in the intent of the author has been much broader.

In conclusion the author wishes to express his sense of obligation toward all those who have so generously assisted him both directly and indirectly with their criticisms and suggestions during the progress of the work, and his hope that the book will be found sufficiently helpful to elicit further criticism looking towards the improvement of future works of this character, whether by the author or by others.

C. A. M.

ITHACA, N. Y., *May, 1905.*

LIST OF PLATES.

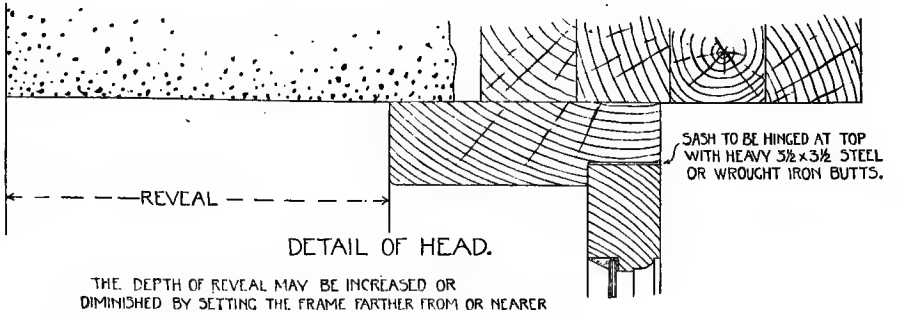
I.—DETAILS OF AN ORDINARY CELLAR WINDOW IN A STONE WALL.
II.—DETAILS OF CELLAR WINDOW WITH SCREEN AND IRON GRILLE.
III.—DETAILS OF CELLAR WINDOWS AND BASE COURSES FOR FRAME COTTAGES.
IV.—A TYPICAL DOUBLE-HUNG WINDOW.
V.—DETAILS OF DOUBLE-HUNG WINDOWS WITH INSIDE SHUTTERS.
VI.—WINDOWS WITH OUTSIDE SHUTTERS.
VII.—DETAILS OF COUNTER-BALANCED WINDOWS WITH MULLIONS AND TRANSOMS.
VIII.—DETAILS OF WINDOWS IN FRAME WALLS.
IX.—DETAILS OF DOUBLE-HUNG WINDOWS IN FRAME WALLS.
X.—MISCELLANEOUS DETAILS FOR DOUBLE-HUNG WINDOWS.
XI.—DETAILS OF BAY WINDOWS WITH COUNTER-BALANCED SASHES.
XII.—DETAILS OF CASEMENT WINDOWS OPENING OUTWARD.
XIII.—DETAILS OF CASEMENT WINDOWS OPENING IN.
XIV.—DETAILS OF A CASEMENT WINDOW WITH MULLIONS AND TRANSOMS AND WITH SASHES OPENING OUTWARD.
XV.—DETAILS OF A CASEMENT BAY WINDOW.
XVI.—DETAILS OF PIVOTED CASEMENTS AND EYEBROW DORMERS.
XVII.—STORM-RESISTING WINDOWS.
XVIII.—TYPES OF DOORS WITH GENERAL DIMENSIONS.
XIX.—EXAMPLES OF DOORS IN VARIOUS STYLES.
XX.—DETAILS OF OUTSIDE DOOR FRAMES, STONE SILL, AND TRANSOMS.
XXI.—DETAILS OF INTERIOR DOOR FRAMES AND WOODEN SILLS.
XXII.—DETAILS OF DOORS.
XXIII.—DETAILS OF SLIDING DOORS.
XXIV.—DETAILS OF GUTTERS, FOR WOOD, STONE, AND TERRA-COTTA CORNICES.
XXV.—DETAILS OF BOX CORNICES.
XXVI.—DETAILS OF OPEN TIMBER CORNICES.
XXVII.—DETAILS OF OPEN TIMBER CORNICES.
XXVIII.—MISCELLANEOUS EXTERIOR DETAILS.
XXIX.—WAINSCOTING AND ARCHITRAVES.
XXX.—GENERAL INTERIOR FINISH.
XXXI.—STAIR DETAILS.
XXXII.—KITCHEN AND PANTRY DRESSERS.
XXXIII.—FIREPLACE DETAILS.

NOTE.

THE THICKNESS OF LUMBER FOR FINISHED WORK.

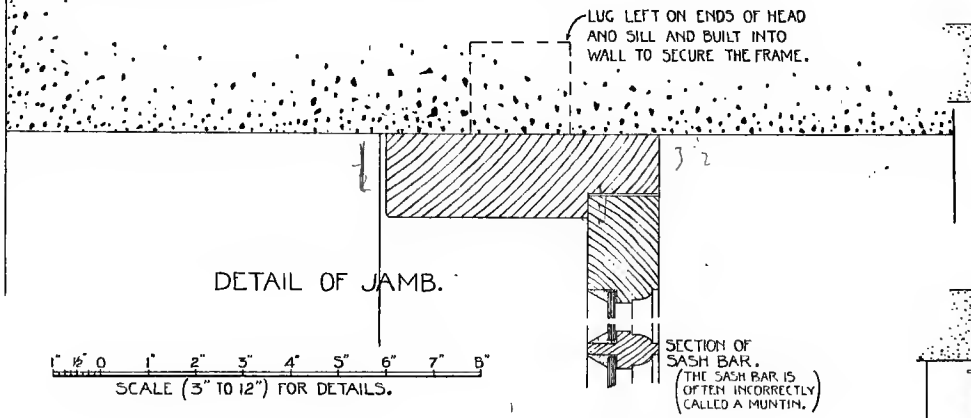
The boards and planks used for sheathing, flooring, and the finer work about buildings measure in the rough 1 in., 1¼ in., 1½ in., 2 ins., 2½ ins., and 3 ins. in thickness. White pine and other lumber produced in the North is usually sawed to full thickness so that the planing on both sides can ordinarily be done with a reduction of only ⅛ in. in thickness; but lumber from the Southern markets, such as yellow pine, etc., is sawed so that it is necessary to count upon a reduction of ¼ in. in thickness for all lumber having a nominal thickness of 2 ins. or more. This gives the ordinary stock dimensions for the thickness of finished lumber as follows: ⅞ in., 1⅛ in., 1⅜ in., 1¾ in. or 1⅞ in., 2¼ ins. or 2⅜ ins., and 2¾ ins. or 2⅞ ins.

Finished lumber thinner than ⅞ in. must be planed down or re-sawed from rough lumber 1 in. or more in thickness. Stock ceiling boards that are made for the market in large quantities are commonly ⅞ in., ¾ in., ⅝ in., ½ in., and ⅜ in. in thickness, and the price is gradually scaled down with the thickness so that the ⅜ in. material is listed at about 60 per cent of the price of the ⅞ in. material. For ordinary finishing, however, where the stock must be gotten out especially for the particular operation, there is little economy in using ¾ in., ⅝ in. or ½ in. material, as the quantity required for any one operation is usually so small that re-sawing cannot be done economically.



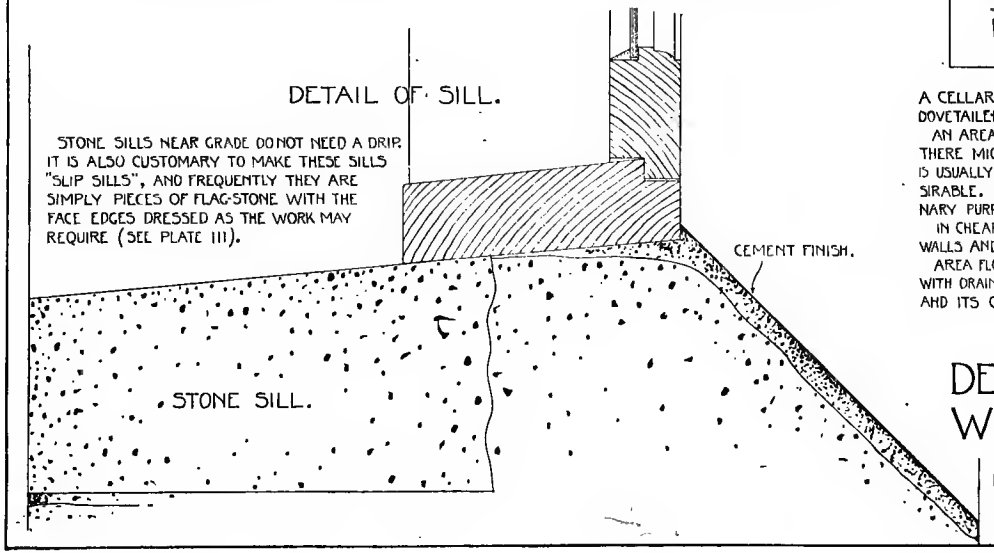
DETAIL OF HEAD.

THE DEPTH OF REVEAL MAY BE INCREASED OR DIMINISHED BY SETTING THE FRAME FARTHER FROM OR NEARER TO THE FACE OF THE WALL, OR BY MAKING THE FRAME ITSELF NARROWER OR WIDER.



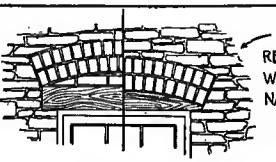
DETAIL OF JAMB.

SCALE (3" TO 12") FOR DETAILS.

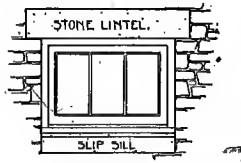


DETAIL OF SILL.

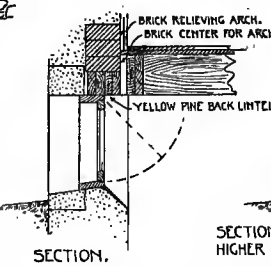
STONE SILLS NEAR GRADE DO NOT NEED A DRIP. IT IS ALSO CUSTOMARY TO MAKE THESE SILLS "SLIP SILLS", AND FREQUENTLY THEY ARE SIMPLY PIECES OF FLAG-STONE WITH THE FACE EDGES DRESSED AS THE WORK MAY REQUIRE (SEE PLATE III).



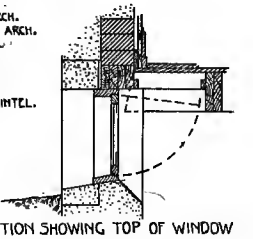
AN INTERIOR ELEVATION SHOWING TWO METHODS OF BUILDING RELIEVING ARCHES OVER WOOD CENTERS OR BACK LINTELS. WHERE INTERIOR FINISH IS USED THE WOOD LINTEL GIVES A FIRM NAILING FOR FURRINGS, GROUNDS, ETC.



ELEVATION.



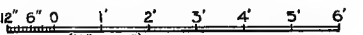
SECTION.



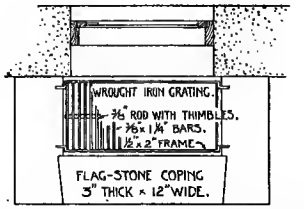
SECTION SHOWING TOP OF WINDOW HIGHER THAN BOTTOM OF JOISTS.

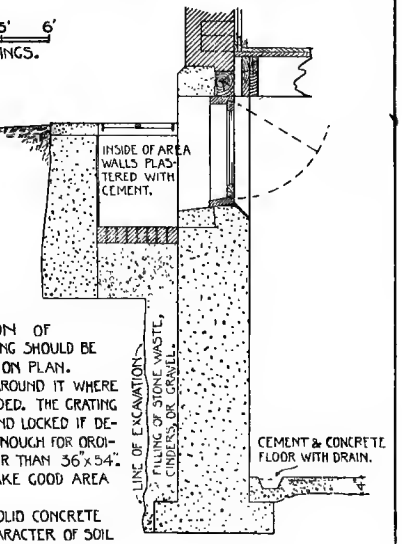
PLAN.

THE WALLS OF FIRST STORY ARE USUALLY BUILT FROM 2" TO 6" THINNER THAN CELLAR WALLS. THIS CAN BE ACCOMPLISHED BY AN OFFSET ON THE INSIDE EITHER AT TOP OR BOTTOM OF JOISTS, OR BY A WATER TABLE ON THE OUTSIDE, OR BOTH. THE TOP OF THE WATER TABLE IS USUALLY ABOUT ON A LEVEL WITH THE FIRST FLOOR, THOUGH IT MAY BE HIGHER OR LOWER AT THE OPTION OF THE DESIGNER.



SCALE (¼" TO 12") FOR SMALL DRAWINGS.




INSIDE OF AREA WALLS PLASTERED WITH CEMENT.
LINE OF EXCAVATION.
FILLING OF STONE WASTE, CINDERS OR GRAVEL.
CEMENT & CONCRETE FLOOR WITH DRAIN.

PLAN AND SECTION OF A CELLAR WINDOW WITH AN AREA FOR LIGHT. THE COPING SHOULD BE DOVETAILED OR NOTCHED TOGETHER AT CORNERS AS SHOWN ON PLAN.

AN AREA SHOULD HAVE A GRATING OVER OR A RAILING AROUND IT WHERE THERE MIGHT BE DANGER OF FALLING INTO IT IF UNGUARDED. THE GRATING IS USUALLY LEADED INTO COPING, BUT IT CAN BE HINGED AND LOCKED IF DESIRABLE. THE SIZES OF IRON SHOWN ABOVE ARE HEAVY ENOUGH FOR ORDINARY PURPOSES WHERE THE SIZE OF AREA IS NOT GREATER THAN 36"x54".

IN CHEAP WORK SIMPLE FLAG-STONES SET ON EDGE MAKE GOOD AREA WALLS AND REQUIRE NO COPING.

AREA FLOORS MAY BE HARD BRICKS SET IN SAND, OR SOLID CONCRETE WITH DRAIN; DEPENDING UPON SIZE OF AREA, ITS USE, CHARACTER OF SOIL AND ITS CAPACITY FOR NATURAL DRAINAGE, ETC.

DETAILS OF AN ORDINARY CELLAR WINDOW IN A STONE WALL.

IN A BRICK WALL THE DETAILS WOULD BE THE SAME, THOUGH A BRICK ARCH MIGHT BE USED INSTEAD OF THE STONE LINTEL.

cam PLATE I.

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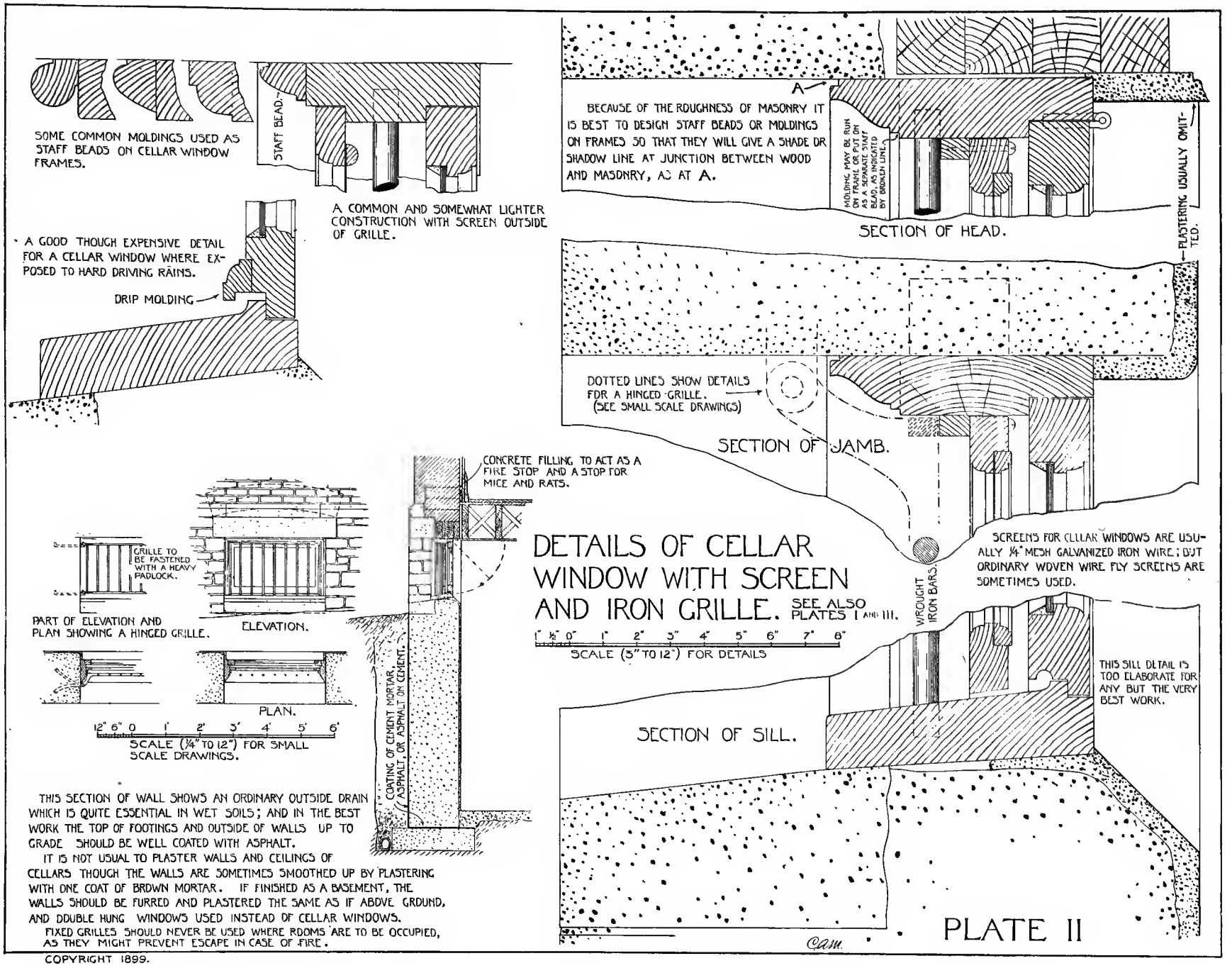
SOME COMMON MOLDINGS USED AS STAFF BEADS ON CELLAR WINDOW FRAMES.
STAFF BEAD.
A COMMON AND SOMEWHAT LIGHTER CONSTRUCTION WITH SCREEN OUTSIDE OF GRILLE.
A GOOD THOUGH EXPENSIVE DETAIL FOR A CELLAR WINDOW WHERE EXPOSED TO HARD DRIVING RAINS.
DRIP MOLDING
BECAUSE OF THE ROUGHNESS OF MASONRY IT IS BEST TO DESIGN STAFF BEADS OR MOLDINGS ON FRAMES SO THAT THEY WILL GIVE A SHADE OR SHADOW LINE AT JUNCTION BETWEEN WOOD AND MASONRY, AS AT A.
A
MOLDING MAY BE RUN ON FRAME AT TOP AS A STAFF BEAD, AS INDICATED BY BROKEN LINE.
SECTION OF HEAD.
PLASTERING USUALLY OMITTED.
DOTTED LINES SHOW DETAILS FOR A HINGED GRILLE. (SEE SMALL SCALE DRAWINGS)
SECTION OF JAMB.
CONCRETE FILLING TO ACT AS A FIRE STOP AND A STOP FOR MICE AND RATS.
GRILLE TO BE FASTENED WITH A HEAVY PADLOCK.
PART OF ELEVATION AND PLAN SHOWING A HINGED GRILLE.
ELEVATION.
PLAN.
12" 6" 0 1' 2' 3' 4' 5' 6'
SCALE (¼" TO 12") FOR SMALL SCALE DRAWINGS.
COATING OF CEMENT MORTAR, ASPHALT, OR ASPHALT OR CEMENT.
DETAILS OF CELLAR WINDOW WITH SCREEN AND IRON GRILLE. SEE ALSO PLATES I AND III.
1" ½" 0" 1" 2" 3" 4" 5" 6" 7" 8"
SCALE (3" TO 12") FOR DETAILS
SCREENS FOR CELLAR WINDOWS ARE USUALLY ¼" MESH GALVANIZED IRON WIRE; BUT ORDINARY WOVEN WIRE FLY SCREENS ARE SOMETIMES USED.
WROUGHT IRON BARS.
THIS SILL DETAIL IS TOO ELABORATE FOR ANY BUT THE VERY BEST WORK.
SECTION OF SILL.
THIS SECTION OF WALL SHOWS AN ORDINARY OUTSIDE DRAIN WHICH IS QUITE ESSENTIAL IN WET SOILS; AND IN THE BEST WORK THE TOP OF FOOTINGS AND OUTSIDE OF WALLS UP TO GRADE SHOULD BE WELL COATED WITH ASPHALT.
IT IS NOT USUAL TO PLASTER WALLS AND CEILINGS OF CELLARS THOUGH THE WALLS ARE SOMETIMES SMOOTHED UP BY PLASTERING WITH ONE COAT OF BROWN MORTAR. IF FINISHED AS A BASEMENT, THE WALLS SHOULD BE FURRED AND PLASTERED THE SAME AS IF ABOVE GROUND, AND DOUBLE HUNG WINDOWS USED INSTEAD OF CELLAR WINDOWS.
FIXED GRILLES SHOULD NEVER BE USED WHERE ROOMS ARE TO BE OCCUPIED, AS THEY MIGHT PREVENT ESCAPE IN CASE OF FIRE.
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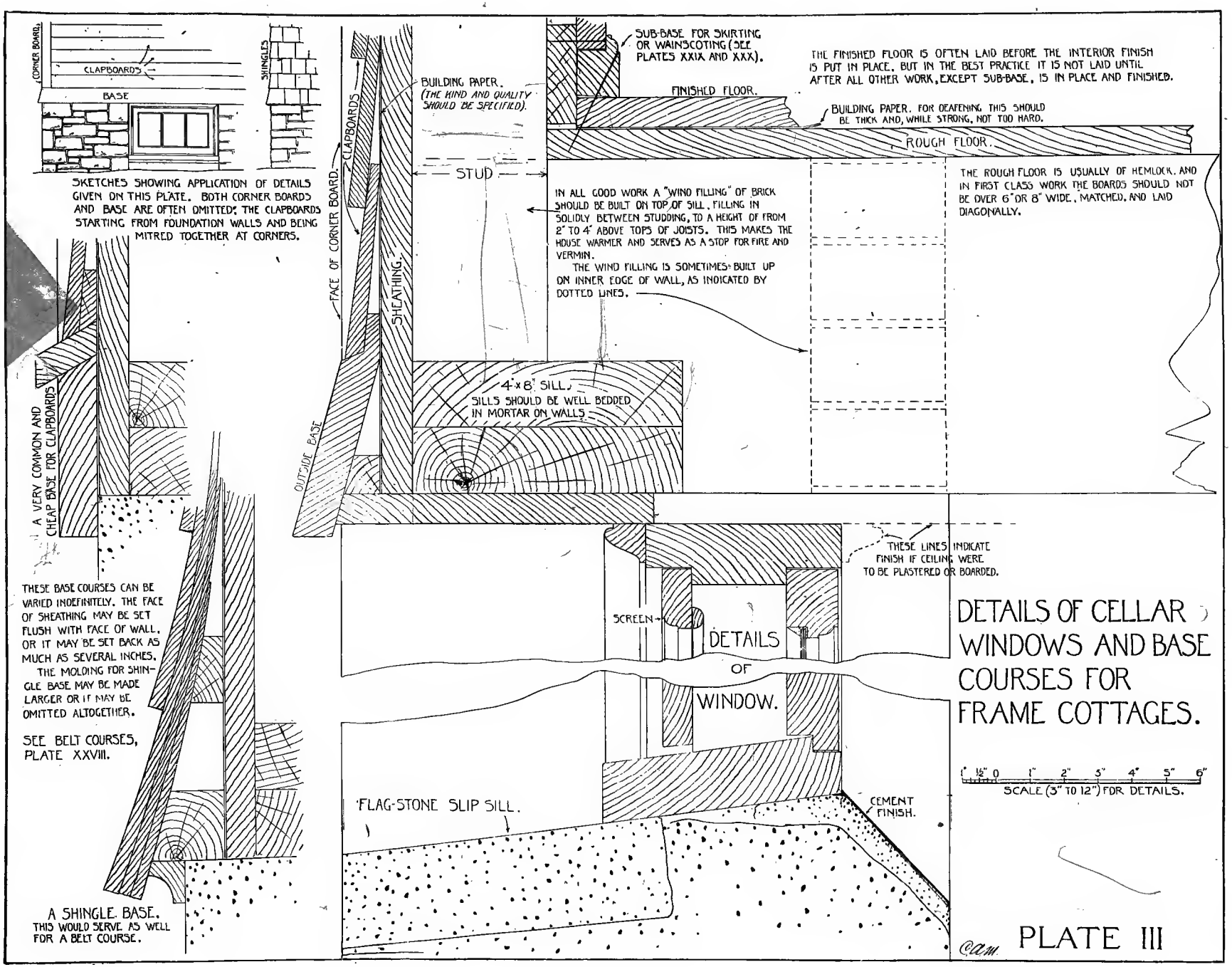
PLATE II


CORNER BOARD.
CLAPBOARDS
BASE
SHINGLES
SKETCHES SHOWING APPLICATION OF DETAILS GIVEN ON THIS PLATE. BOTH CORNER BOARDS AND BASE ARE OFTEN OMITTED; THE CLAPBOARDS STARTING FROM FOUNDATION WALLS AND BEING MITRED TOGETHER AT CORNERS.
A VERY COMMON AND CHEAP BASE FOR CLAPBOARDS
THESE BASE COURSES CAN BE VARIED INDEFINITELY. THE FACE OF SHEATHING MAY BE SET FLUSH WITH FACE OF WALL, OR IT MAY BE SET BACK AS MUCH AS SEVERAL INCHES.
THE MOLDING FOR SHINGLE BASE MAY BE MADE LARGER OR IT MAY BE OMITTED ALTOGETHER.
SEE BELT COURSES, PLATE XXVIII.
A SHINGLE BASE. THIS WOULD SERVE AS WELL FOR A BELT COURSE.
FACE OF CORNER BOARD.
CLAPBOARDS
SHEATHING.
BUILDING PAPER. (THE KIND AND QUALITY SHOULD BE SPECIFIED).
STUD
OUTSIDE BASE
4"x8" SILL.
SILLS SHOULD BE WELL BEDDED IN MORTAR ON WALLS
SUB-BASE FOR SKIRTING OR WAINSCOTING (SEE PLATES XXIX AND XXX).
FINISHED FLOOR.
THE FINISHED FLOOR IS OFTEN LAID BEFORE THE INTERIOR FINISH IS PUT IN PLACE, BUT IN THE BEST PRACTICE IT IS NOT LAID UNTIL AFTER ALL OTHER WORK, EXCEPT SUB-BASE, IS IN PLACE AND FINISHED.
BUILDING PAPER. FOR DEADENING THIS SHOULD BE THICK AND, WHILE STRONG, NOT TOO HARD.
ROUGH FLOOR.
THE ROUGH FLOOR IS USUALLY OF HEMLOCK, AND IN FIRST CLASS WORK THE BOARDS SHOULD NOT BE OVER 6" OR 8" WIDE, MATCHED, AND LAID DIAGONALLY.
IN ALL GOOD WORK A "WIND FILLING" OF BRICK SHOULD BE BUILT ON TOP OF SILL, FILLING IN SOLIDLY BETWEEN STUDDING, TO A HEIGHT OF FROM 2" TO 4" ABOVE TOPS OF JOISTS. THIS MAKES THE HOUSE WARMER AND SERVES AS A STOP FOR FIRE AND VERMIN.
THE WIND FILLING IS SOMETIMES BUILT UP ON INNER EDGE OF WALL, AS INDICATED BY DOTTED LINES.
THESE LINES INDICATE FINISH IF CEILING WERE TO BE PLASTERED OR BOARDED.
SCREEN
DETAILS OF WINDOW.
FLAG-STONE SLIP SILL.
CEMENT FINISH.
SCALE (3" TO 12") FOR DETAILS.
DETAILS OF CELLAR WINDOWS AND BASE COURSES FOR FRAME COTTAGES.
PLATE III

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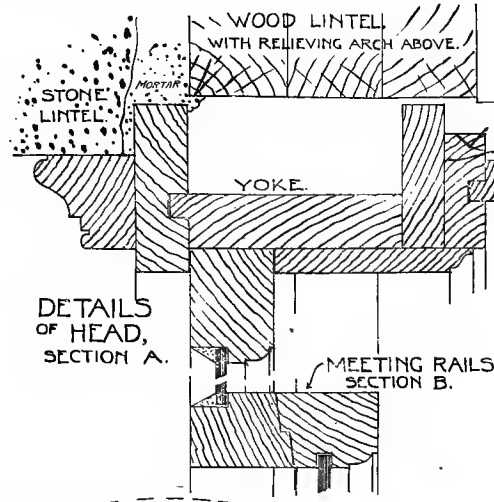
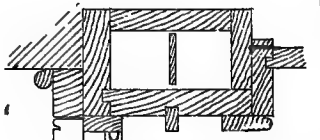
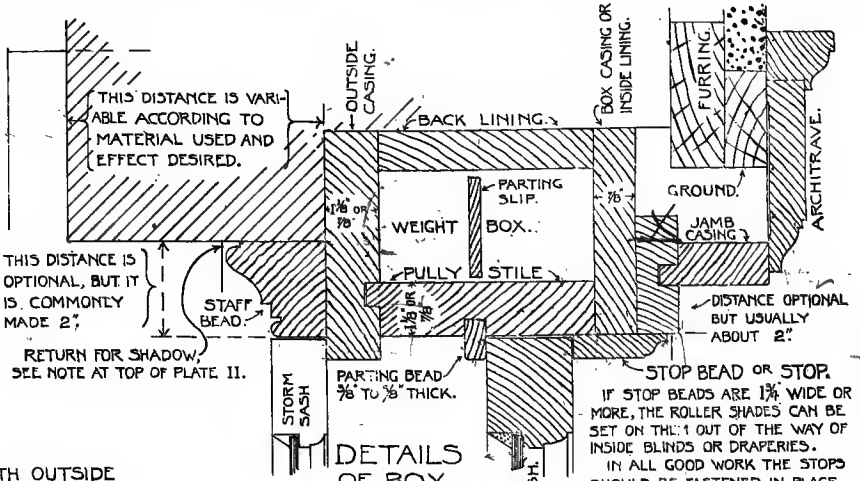


DETAILS OF HEAD, SECTION A.



DETAIL OF BOX WITH OUTSIDE ROLLING SLAT BLINDS AND FLY SCREENS. SCALE 1½" TO 12".



DETAILS OF BOX, SECTION C.

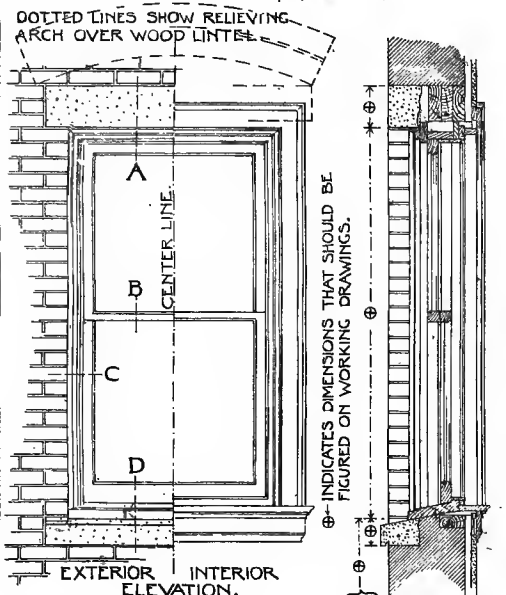
STOP BEAD OR STOP.

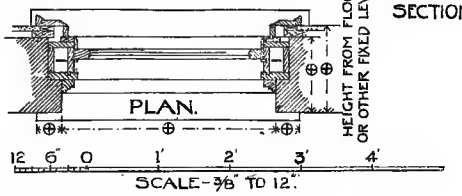
IF STOP BEADS ARE 1¾" WIDE OR MORE, THE ROLLER SHADES CAN BE SET ON THEM OUT OF THE WAY OF INSIDE BLINDS OR DRAPERIES.

IN ALL GOOD WORK THE STOPS SHOULD BE FASTENED IN PLACE WITH ROUND HEADED SCREWS IN METAL STOP ADJUSTERS.

1" ½" 0 1' 2' 3' 4' 5" 6" 7" 8" 9"

SCALE (3" TO 12") FOR DETAILS.





NOTES.

THE ESSENTIAL PARTS OF A DOUBLE HUNG WINDOW FRAME ARE PRACTICALLY THE SAME FOR ALL WINDOWS OF THIS TYPE WHETHER FOR MASONRY OR FRAME WALLS.

OUTSIDE CASINGS AND PULLEY STILES ARE OFTEN MADE ONLY ⅞" THICK, BUT 1⅛" IS MUCH BETTER. THE HEAD IS SOMETIMES, BUT NOT COMMONLY, BUILT WITH A 2" YOKE. PULLEY STILES AND PARTING BEADS – OR PARTING STRIPS – SHOULD BE OF HARD WOOD, OILED, NOT PAINTED.

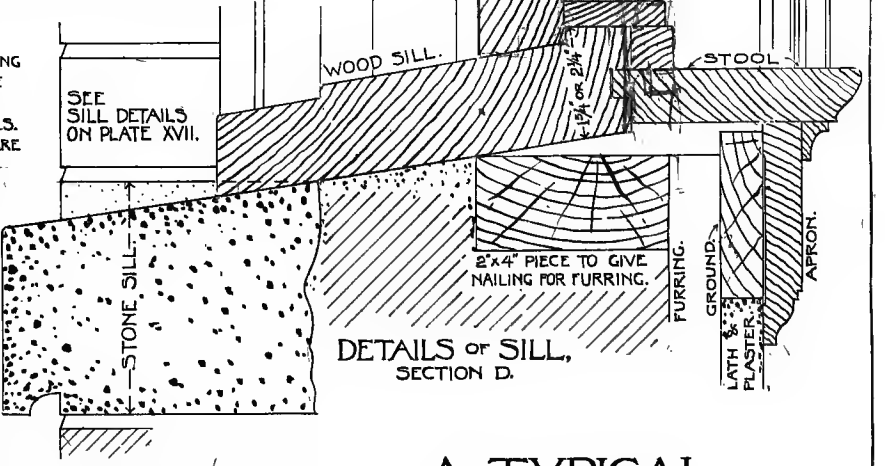
DRAFTSMEN ALMOST INVARIABLY INDICATE PULLEY STILE GROOVED INTO OUTSIDE CASING WITH TONGUE ON FACE SIDE OF STILE, WHILE MILL MEN MAKE IT AS HERE SHOWN – A METHOD WHICH THE WRITER CONSIDERS DECIDEDLY BETTER AS GIVING A LESS VARIABLE WIDTH IN FRAME FOR THE OUTER SASH.

THE PARTING SLIP IS OFTEN OMITTED IN CHEAP WORK; BUT IT IS VERY DESIRABLE, ESPECIALLY WITH RECTANGULAR WEIGHTS, TO KEEP WEIGHTS FROM CLASHING. IT SHOULD BE HUNG FROM TOP AND SHOULD BE FREE TO SWING AS A PENDULUM.

FOR WINDOWS OF ORDINARY SIZE WITH CAST IRON WEIGHTS 2¼" TO 2½" IS DEEP ENOUGH FOR WEIGHT BOXES, BUT HEAVY SASHES REQUIRE EITHER LARGER BOXES OR LEAD WEIGHTS. RECTANGULAR WEIGHTS ECONOMIZE BOX ROOM MUCH BETTER THAN THE ROUND ONES.

THE WIDTH OF OUTSIDE REVEAL AND OF INSIDE JAMB VARIES WITH THE THICKNESS OF WALL AND POSITION OF FRAME IN WALL.

SEE ALSO PLATES V TO XI AND XVII.



DETAILS OF SILL, SECTION D.

A TYPICAL DOUBLE HUNG WINDOW.

cam. PLATE IV

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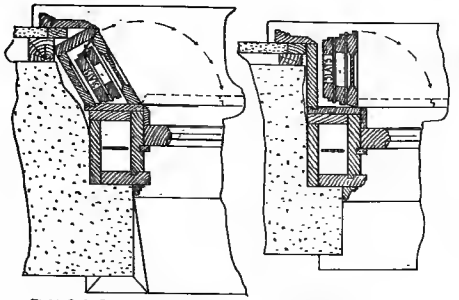
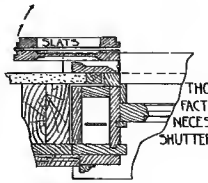
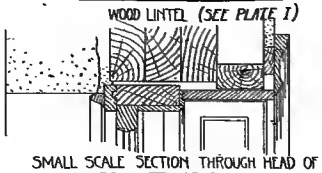


PLANS SHOWING DIFFERENT WAYS OF TREATING INSIDE SHUTTERS.

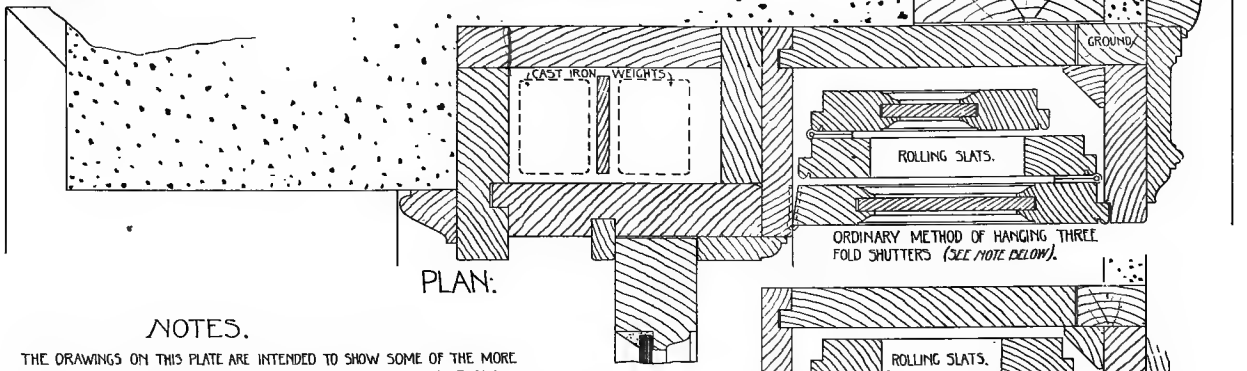
SCALE FOR SMALL DRAWINGS.
3/4" TO 12".



THOUGH VERY UNSATISFACTORY, IT IS SOMETIMES NECESSARY TO HANG INSIDE SHUTTERS AS HERE SHOWN.

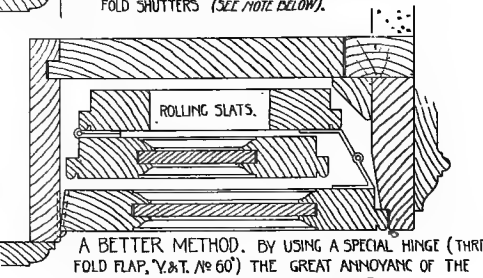


SMALL SCALE SECTION THROUGH HEAD OF WINDOW DETAILED BELOW.



ORDINARY METHOD OF HANGING THREE FOLD SHUTTERS (SEE NOTE BELOW).

PLAN.



A BETTER METHOD. BY USING A SPECIAL HINGE (THREE FOLD FLAP, "V.&T. № 60") THE GREAT ANNOYANC OF THE THIRD FOLD CATCHING IN THE BOX IS AVOIDED.

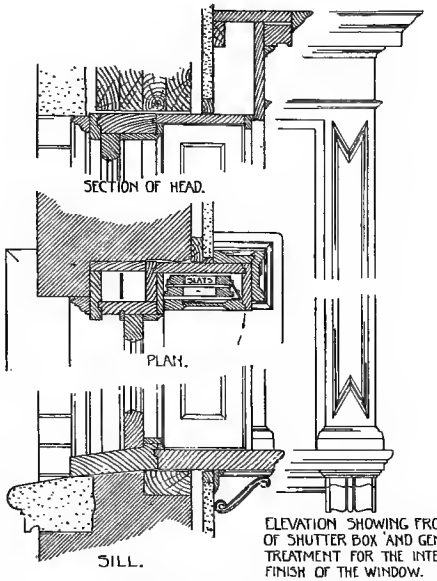
NOTES.

THE DRAWINGS ON THIS PLATE ARE INTENDED TO SHOW SOME OF THE MORE COMMON WAYS OF HANGING INSIDE SHUTTERS. FROM THESE THE STUDENT CAN EASILY MAKE VARIATIONS TO SUIT ANY GIVEN CASE.

SHUTTERS MAY BE 1, 2, 3, 4 OR EVEN 5 FOLD, THE WIDTH OF FOLD BEING DETERMINED FROM THE AVAILABLE SPACE, AND THIS, WITH WIDTH OF WINDOW, DETERMINING THE NUMBER OF FOLDS. IN NARROW, MULLIONED WINDOWS THE SHUTTERS MAY ALL BE FOLDED AT JAMBS AND THE MULLIONS LEFT CLEAR, BUT IN THE WIDER WINDOWS OF THIS KIND IT IS USUALLY NECESSARY TO HANG PART OF THE SHUTTERS ON THE MULLION, AS SHOWN ON PLAN № 3, PLATE VII.

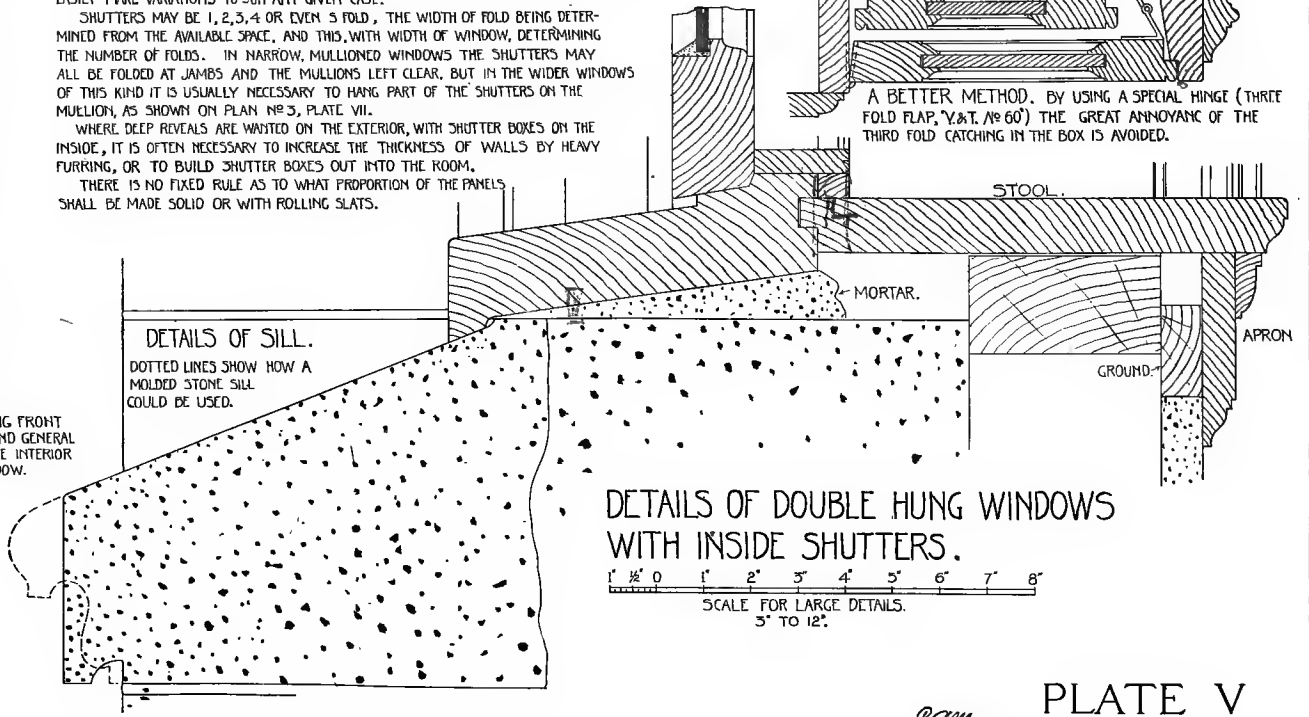
WHERE DEEP REVEALS ARE WANTED ON THE EXTERIOR, WITH SHUTTER BOXES ON THE INSIDE, IT IS OFTEN NECESSARY TO INCREASE THE THICKNESS OF WALLS BY HEAVY FURRING, OR TO BUILD SHUTTER BOXES OUT INTO THE ROOM.

THERE IS NO FIXED RULE AS TO WHAT PROPORTION OF THE PANELS SHALL BE MADE SOLID OR WITH ROLLING SLATS.



ELEVATION SHOWING FRONT OF SHUTTER BOX AND GENERAL TREATMENT FOR THE INTERIOR FINISH OF THE WINDOW.

DETAILS SHOWING SHUTTER BOX BUILT OUT INTO THE ROOM. THIS MAKES AN EXPENSIVE BUT QUITE EFFECTIVE FINISH WHEN WELL HANDLED.



DETAILS OF SILL.

DOTTED LINES SHOW HOW A MOLDED STONE SILL COULD BE USED.

DETAILS OF DOUBLE HUNG WINDOWS WITH INSIDE SHUTTERS.

SCALE FOR LARGE DETAILS.
3" TO 12".

cam.

PLATE V

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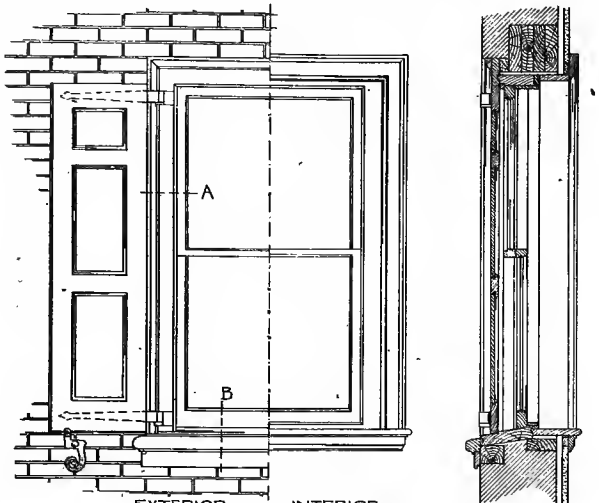
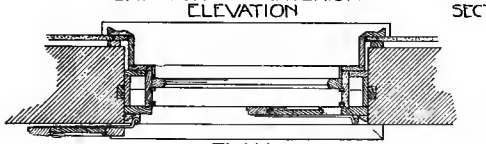


EXTERIOR ELEVATION

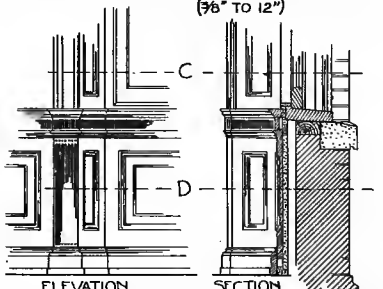
SECTION.



PLAN.

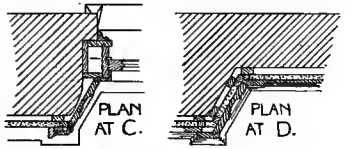
12" 6" 0 1' 2' 3' 4' 5' 6'

SCALE FOR SMALL DRAWINGS. (⅜" TO 12")

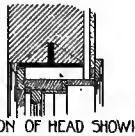


ELEVATION SECTION.

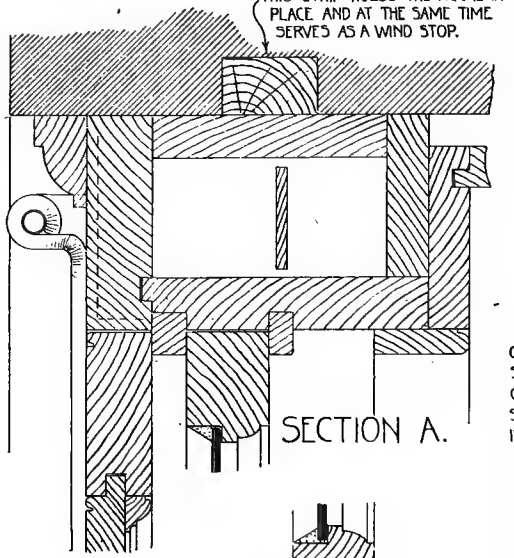
SKETCHES SHOWING A "PANEL BACK" WINDOW FROM AN OLD EXAMPLE. THE DETAILS OF THIS WORK CAN BEST BE STUDIED UNDER THE HEAD OF WAINSCOTING (SEE PLATES XXIX & XXX).



PLAN AT C. PLAN AT D.

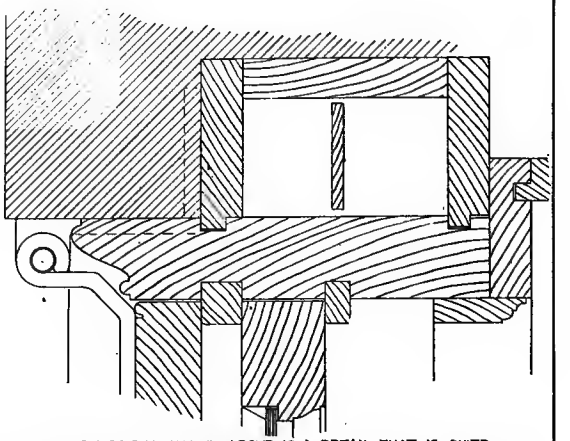


SECTION OF HEAD SHOWING A CAST IRON LINTEL.

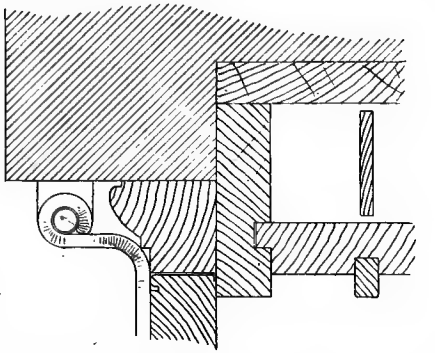


THIS STRIP HOLDS THE FRAME IN PLACE AND AT THE SAME TIME SERVES AS A WIND STOP.

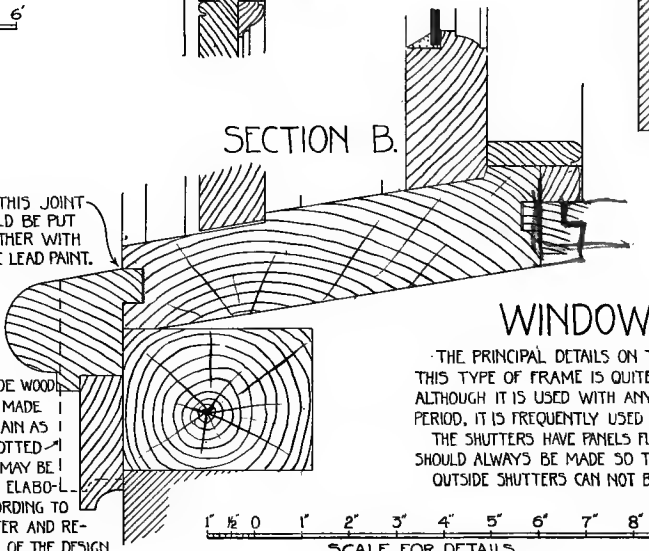
SECTION A.



THE SECTION OF BOX SHOWN ABOVE IS A DETAIL THAT IS QUITE COMMON IN SOME PARTS OF EASTERN PENNSYLVANIA. THE 1¾" PULLEY STILE IS OBJECTIONABLE BECAUSE IT REQUIRES SUCH LARGE PULLEYS TO CARRY THE WEIGHTS BACK TO THE MIDDLE OF THE BOX. THE SECTION SHOWN BELOW, WHERE STAFF BEAD IS FORMED TO RECEIVE SHUTTER, IS MUCH BETTER.



SECTION B.



THIS JOINT SHOULD BE PUT TOGETHER WITH WHITE LEAD PAINT.

THE OUTSIDE WOOD SILL MAY BE MADE PERFECTLY PLAIN AS SHOWN BY DOTTED LINES, OR IT MAY BE INDEFINITELY ELABORATED, ACCORDING TO THE CHARACTER AND REQUIREMENTS OF THE DESIGN.

1" ½ 0 1" 2" 3" 4" 5" 6" 7" 8" 9" 10"

SCALE FOR DETAILS. (3" TO 12")

WINDOWS WITH OUTSIDE SHUTTERS.

THE PRINCIPAL DETAILS ON THIS PLATE SHOW AN OLD FASHIONED "PLANK FRONT" FRAME. THIS TYPE OF FRAME IS QUITE CHARACTERISTIC OF OLD COLONIAL WORK ABOUT PHILA.; AND ALTHOUGH IT IS USED WITH ANY OF THE ARCHES, LINTELS AND STONE SILLS COMMON TO THAT PERIOD, IT IS FREQUENTLY USED WITH WOOD SILLS AND WITHOUT VISIBLE LINTEL, AS HERE SHOWN.

THE SHUTTERS HAVE PANELS FLUSH ON THE OUTSIDE AND MOLDED ON THE INSIDE, AND THE HINGES SHOULD ALWAYS BE MADE SO THAT SHUTTERS WILL OPEN OUT FLAT AGAINST THE FACE OF THE WALL.

OUTSIDE SHUTTERS CAN NOT BE USED ON HINGED WINDOWS THAT OPEN OUT.

PLATE VI

C.A.M.

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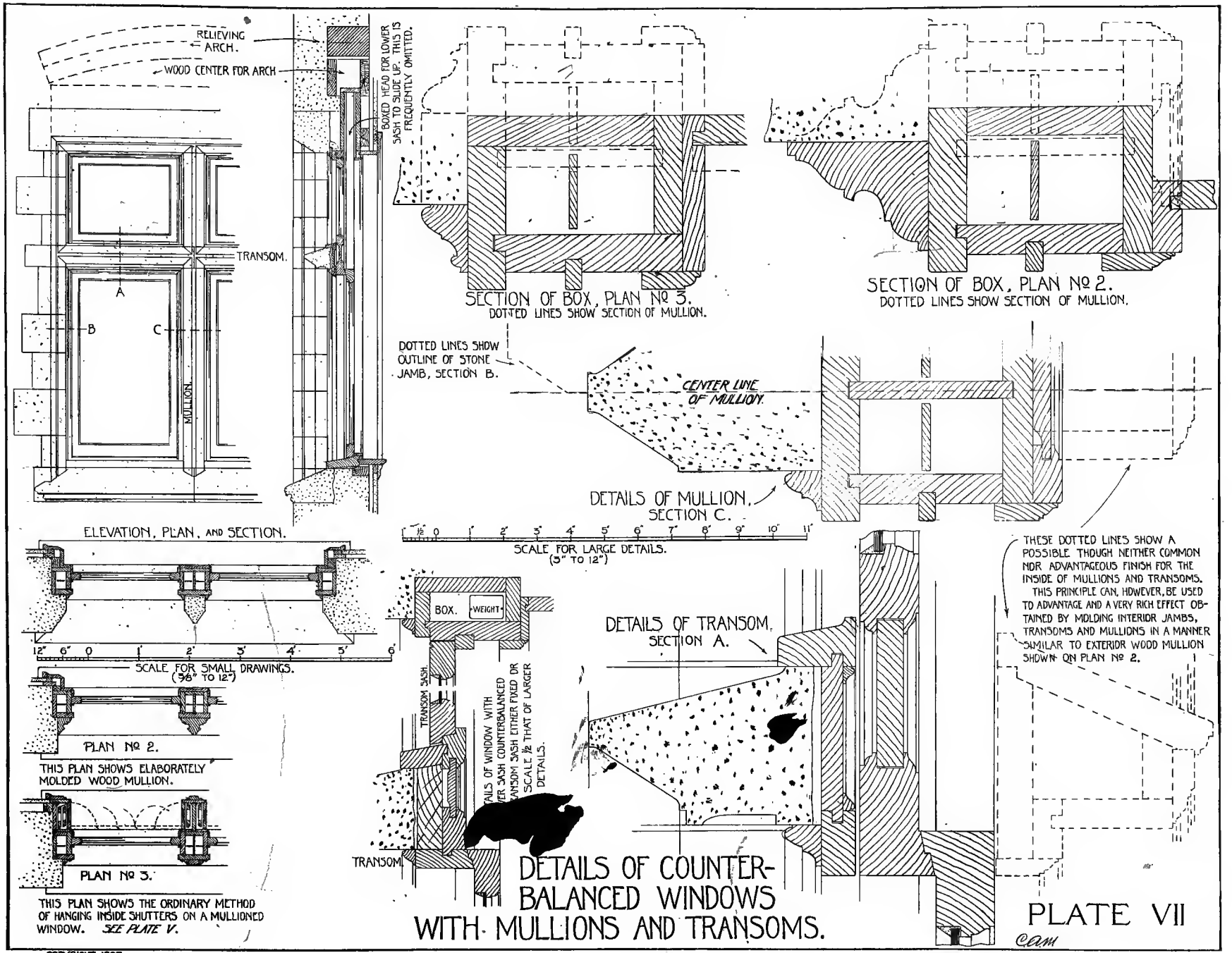
RELIEVING ARCH.
WOOD CENTER FOR ARCH
BOXED HEAD FOR LOWER SASH TO SLIDE UP. THIS IS FREQUENTLY OMITTED.
TRANSOM.
A
B
C
MULLION.
ELEVATION, PLAN, AND SECTION.
12" 6" 0 1' 2' 3' 4' 5' 6'
SCALE FOR SMALL DRAWINGS. (½" TO 12")
PLAN № 2.
THIS PLAN SHOWS ELABORATELY MOLDED WOOD MULLION.
PLAN № 3.
THIS PLAN SHOWS THE ORDINARY METHOD OF HANGING INSIDE SHUTTERS ON A MULLIONED WINDOW. SEE PLATE V.
SECTION OF BOX, PLAN № 3.
DOTTED LINES SHOW SECTION OF MULLION.
SECTION OF BOX, PLAN № 2.
DOTTED LINES SHOW SECTION OF MULLION.
DOTTED LINES SHOW OUTLINE OF STONE JAMB, SECTION B.
CENTER LINE OF MULLION.
DETAILS OF MULLION, SECTION C.
½ 0 1' 2' 3' 4' 5' 6' 7' 8' 9' 10' 11'
SCALE FOR LARGE DETAILS. (3" TO 12")
BOX.
WEIGHT
TRANSOM SASH.
TRANSOM.
DETAILS OF WINDOW WITH ER SASH COUNTERBALANCED ANSOM SASH EITHER FIXED OR SCALE ½ THAT OF LARGER DETAILS.
DETAILS OF TRANSOM, SECTION A.
THESE DOTTED LINES SHOW A POSSIBLE THOUGH NEITHER COMMON NOR ADVANTAGEOUS FINISH FOR THE INSIDE OF MULLIONS AND TRANSOMS. THIS PRINCIPLE CAN, HOWEVER, BE USED TO ADVANTAGE AND A VERY RICH EFFECT OBTAINED BY MOLDING INTERIOR JAMBS, TRANSOMS AND MULLIONS IN A MANNER SIMILAR TO EXTERIOR WOOD MULLION SHOWN ON PLAN № 2.

DETAILS OF COUNTER-BALANCED WINDOWS WITH MULLIONS AND TRANSOMS.

PLATE VII

CAM

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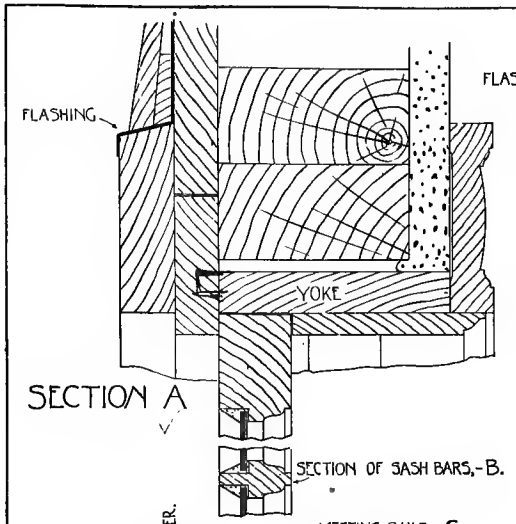
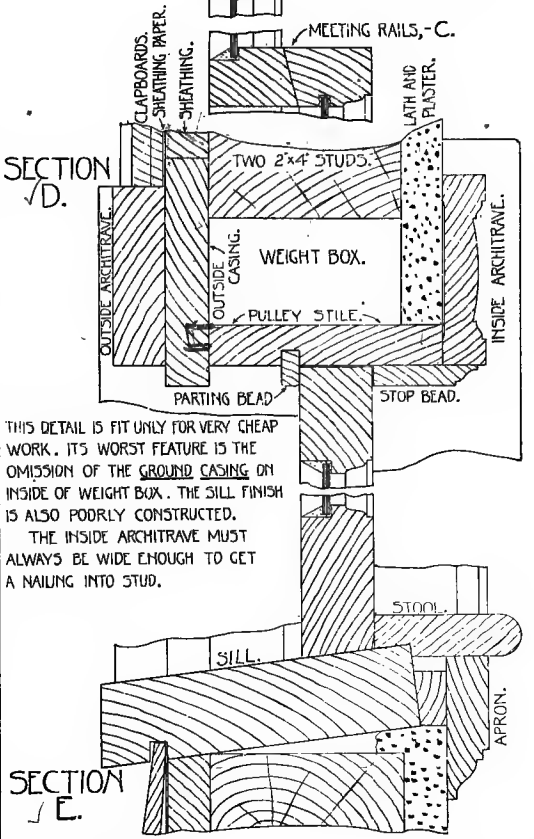


SECTION A

SECTION OF SASH BARS,-B.

MEETING RAILS,-C.

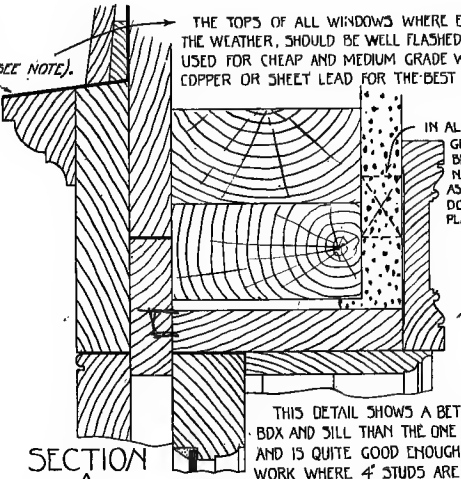


SECTION D.

THIS DETAIL IS FIT ONLY FOR VERY CHEAP WORK. ITS WORST FEATURE IS THE OMISSION OF THE GROUND CASING ON INSIDE OF WEIGHT BOX. THE SILL FINISH IS ALSO POORLY CONSTRUCTED.

THE INSIDE ARCHITRAVE MUST ALWAYS BE WIDE ENOUGH TO GET A NAILING INTO STUD.

SECTION E.

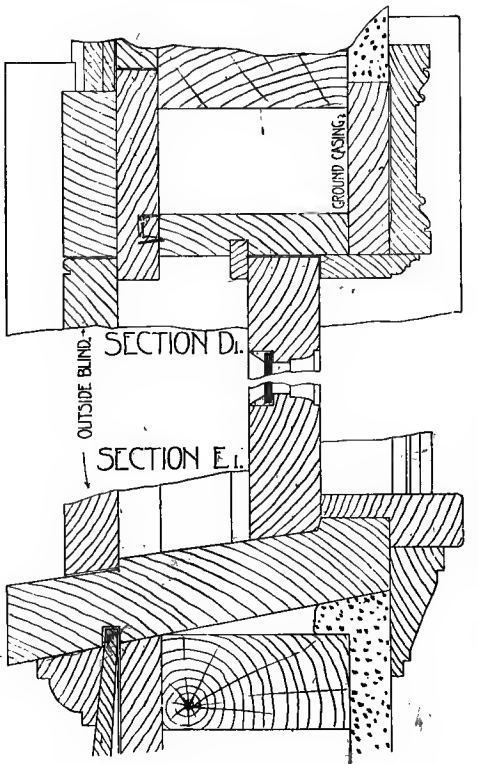


THE TOPS OF ALL WINDOWS WHERE EXPOSED TO THE WEATHER, SHOULD BE WELL FLASHED TIN IS USED FOR CHEAP AND MEDIUM GRADE WORK, AND COPPER OR SHEET LEAD FOR THE BEST WORK.

IN ALL GOOD WORK GROUNDS SHOULD BE USED FOR NAILING FINISH, AS INDICATED BY DOTTED LINES IN PLASTER.

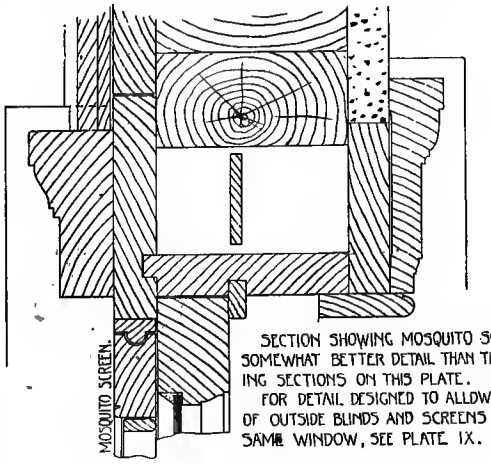
SECTION A1.

THIS DETAIL SHOWS A BETTER WEIGHT BOX AND SILL THAN THE ONE TO THE LEFT, AND IS QUITE GOOD ENOUGH FOR ORDINARY WORK WHERE 4" STUDS ARE USED. THE OUTSIDE ARCHITRAVE OUGHT USUALLY TO BE MADE SO THAT OUTSIDE BLINDS CAN BE PUT ON AS HERE SHOWN.



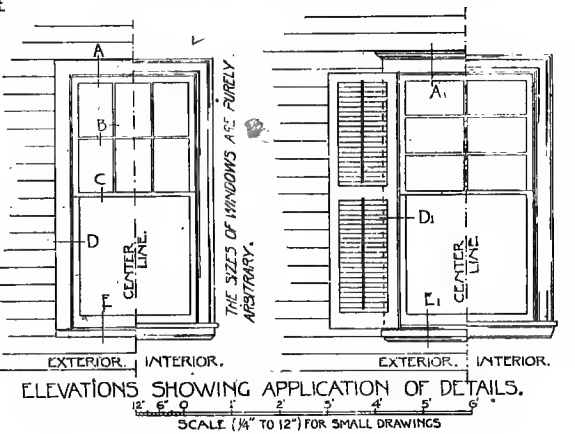
SECTION D1.

SECTION E1.



SECTION SHOWING MOSQUITO SCREEN AND SOMEWHAT BETTER DETAIL THAN THE PRECEDING SECTIONS ON THIS PLATE.

FOR DETAIL DESIGNED TO ALLOW THE USE OF OUTSIDE BLINDS AND SCREENS ON THE SAME WINDOW, SEE PLATE IX.



ELEVATIONS SHOWING APPLICATION OF DETAILS.

SCALE (¼" TO 12") FOR SMALL DRAWINGS

DETAILS OF WINDOWS IN FRAME WALLS.

THE DETAILS SHOWN ON THIS PLATE ARE ALL DRAWN FOR WALLS WITH 4" STUDS. WITH WALLS OF THIS THICKNES NO SASH THICKER THAN 1½" CAN WELL BE USED. THE WIDTH OF THE OUTSIDE ARCHITRAVE IS ENTIRELY OPTIONAL, BUT ITS THICKNESS SHOULD NEVER BE LESS THAN 1⅛" TO RECEIVE CLAPBOARDS OR SHINGLES, AND WITH THICK SHINGLES IT MUST NOT BE LESS THAN 1⅜".

THE STOOL, OR INSIDE SILL, MIGHT JUST AS WELL BE FINISHED IN ALMOST ANY OF THE VARIOUS WAYS SHOWN ON OTHER DETAILS OF THIS SERIES.

1' ½" 0 1" 2" 3" 4" 5" 6" 7" 8" 9"

SCALE FOR DETAILS - 3" TO 12".

PLATE VIII

C.A.M.

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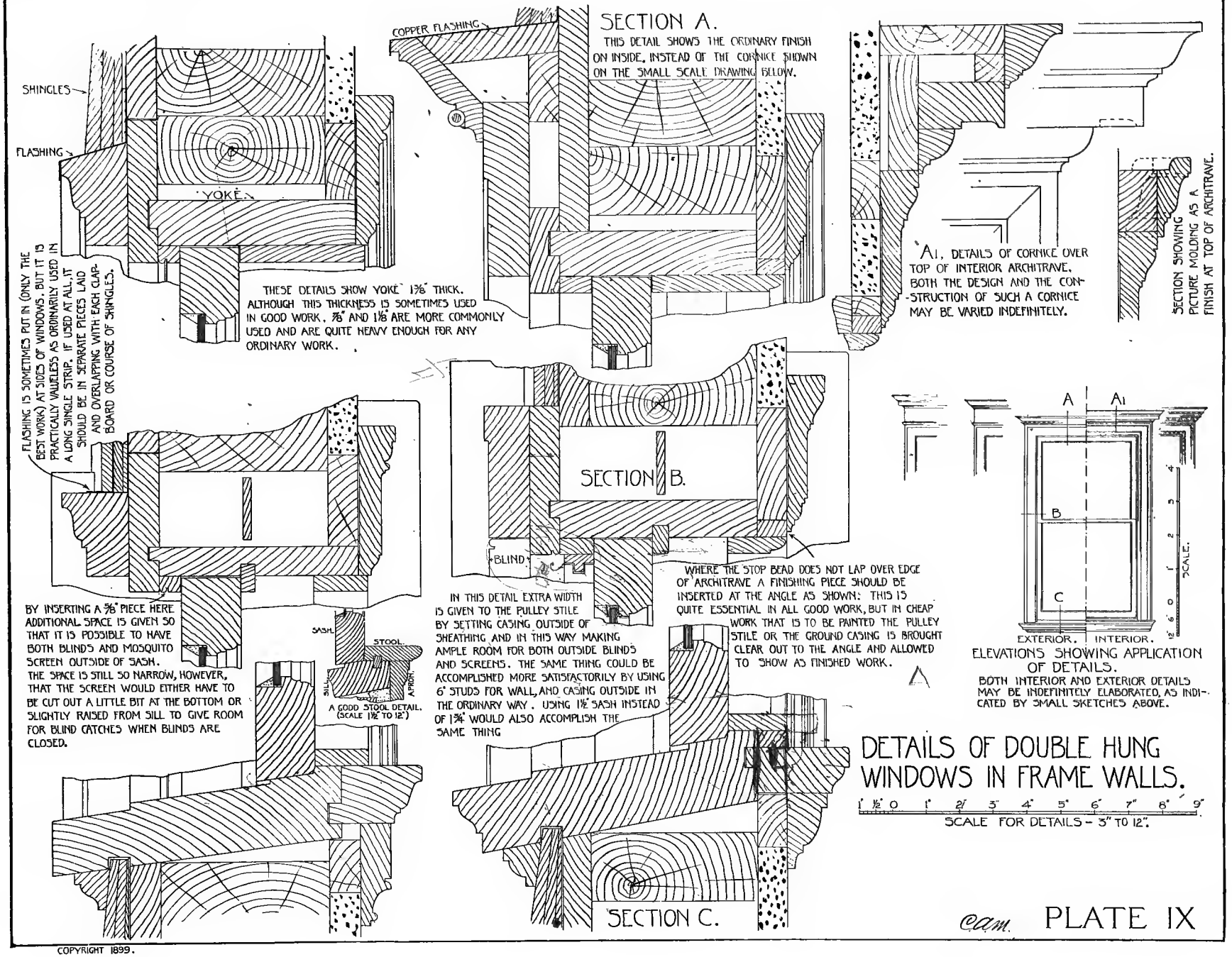
SHINGLES
FLASHING
YOKE
FLASHING IS SOMETIMES PUT IN (ONLY THE BEST WORK) AT SIDES OF WINDOWS. BUT IT IS PRACTICALLY VALUELESS AS ORDINARILY USED IN A LONG SINGLE STRIP. IF USED AT ALL, IT SHOULD BE IN SEPARATE PIECES LAID AND OVERLAPPING WITH EACH CLAPBOARD OR COURSE OF SHINGLES.
THESE DETAILS SHOW YOKE 1⅞" THICK. ALTHOUGH THIS THICKNESS IS SOMETIMES USED IN GOOD WORK, ⅞" AND 1⅛" ARE MORE COMMONLY USED AND ARE QUITE HEAVY ENOUGH FOR ANY ORDINARY WORK.
COPPER FLASHING
SECTION A.
THIS DETAIL SHOWS THE ORDINARY FINISH ON INSIDE, INSTEAD OF THE CORNICE SHOWN ON THE SMALL SCALE DRAWING BELOW.
A1, DETAILS OF CORNICE OVER TOP OF INTERIOR ARCHITRAVE. BOTH THE DESIGN AND THE CONSTRUCTION OF SUCH A CORNICE MAY BE VARIED INDEFINITELY.
SECTION SHOWING PICTURE MOLDING AS A FINISH AT TOP OF ARCHITRAVE.
SECTION B.
BLIND
BY INSERTING A ⅝" PIECE HERE ADDITIONAL SPACE IS GIVEN SO THAT IT IS POSSIBLE TO HAVE BOTH BLINDS AND MOSQUITO SCREEN OUTSIDE OF SASH. THE SPACE IS STILL SO NARROW, HOWEVER, THAT THE SCREEN WOULD EITHER HAVE TO BE CUT OUT A LITTLE BIT AT THE BOTTOM OR SLIGHTLY RAISED FROM SILL TO GIVE ROOM FOR BLIND CATCHES WHEN BLINDS ARE CLOSED.
SASH
STOOL
SILL
APRON
A GOOD STOOL DETAIL. (SCALE 1½" TO 12")
IN THIS DETAIL EXTRA WIDTH IS GIVEN TO THE PULLEY STILE BY SETTING CASING OUTSIDE OF SHEATHING AND IN THIS WAY MAKING AMPLE ROOM FOR BOTH OUTSIDE BLINDS AND SCREENS. THE SAME THING COULD BE ACCOMPLISHED MORE SATISFACTORILY BY USING 6" STUDS FOR WALL, AND CASING OUTSIDE IN THE ORDINARY WAY. USING 1½" SASH INSTEAD OF 1¾" WOULD ALSO ACCOMPLISH THE SAME THING
WHERE THE STOP BEAD DOES NOT LAP OVER EDGE OF ARCHITRAVE A FINISHING PIECE SHOULD BE INSERTED AT THE ANGLE AS SHOWN: THIS IS QUITE ESSENTIAL IN ALL GOOD WORK, BUT IN CHEAP WORK THAT IS TO BE PAINTED THE PULLEY STILE OR THE GROUND CASING IS BROUGHT CLEAR OUT TO THE ANGLE AND ALLOWED TO SHOW AS FINISHED WORK.
SECTION C.
A
A1
B
C
EXTERIOR.
INTERIOR.
SCALE.
ELEVATIONS SHOWING APPLICATION OF DETAILS.
BOTH INTERIOR AND EXTERIOR DETAILS MAY BE INDEFINITELY ELABORATED, AS INDICATED BY SMALL SKETCHES ABOVE.
DETAILS OF DOUBLE HUNG WINDOWS IN FRAME WALLS.
SCALE FOR DETAILS - 3" TO 12".
PLATE IX

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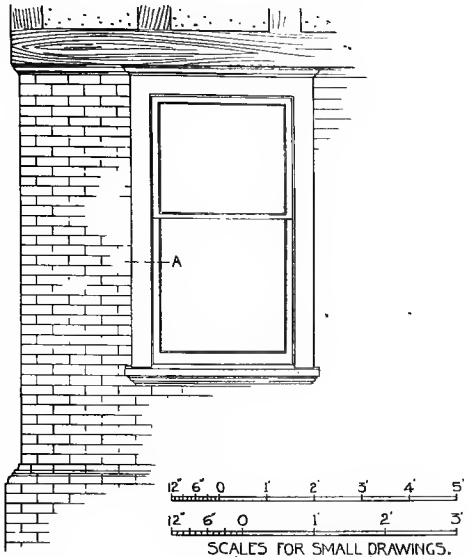
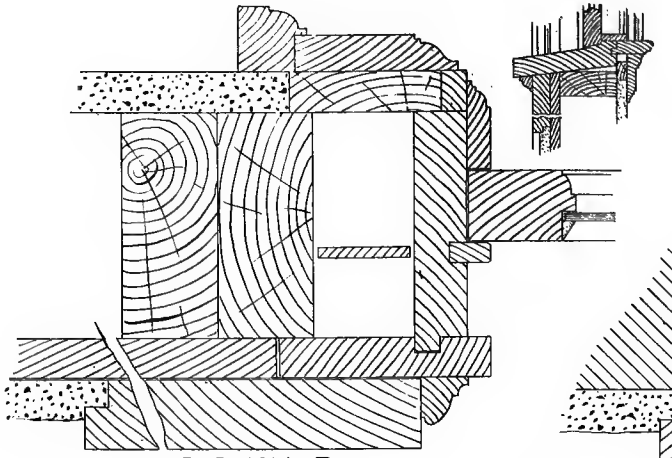


12" 6" 0 1' 2' 3' 4' 5'

12" 6" 0 1' 2' 3'

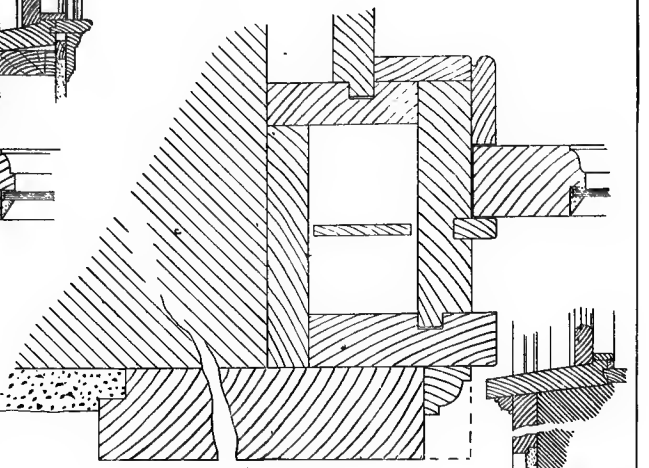
SCALES FOR SMALL DRAWINGS.
(¼" AND ⅜" TO 12")



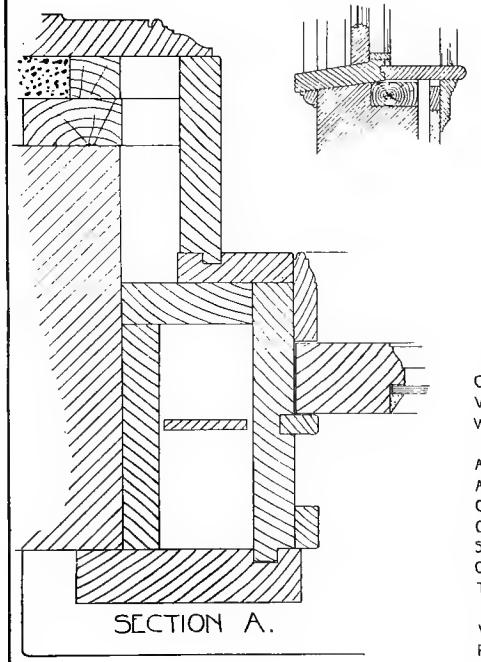
SECTION B.

1" ½" 0 1' 2' 3' 4' 5' 6' 7' 8" 9" 10"

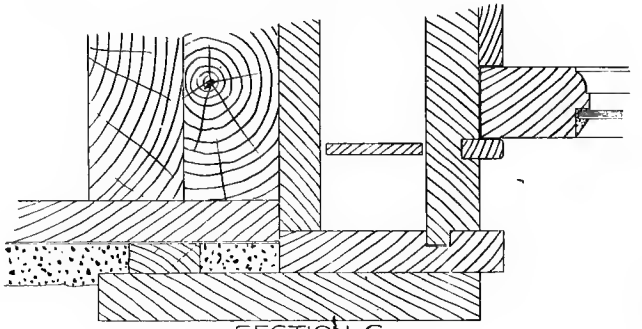
SCALE FOR DETAILS – 3" TO 12".



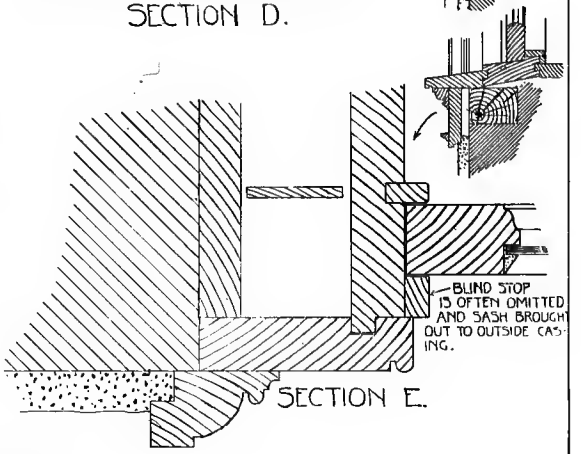
SECTION D.



SECTION A.



SECTION C.



SECTION E.

NOTES.

THE SMALL SCALE ELEVATION ABOVE AND DETAIL SECTION A BELOW SHOW A VERY GOOD AND COMPARATIVELY INEXPENSIVE CONSTRUCTION FOR WINDOWS IN THIN BRICK WALLS, OR FRAME WALLS VENEERED WITH BRICK. THE USUAL CONSTRUCTION, HOWEVER, FOR WINDOWS IN WALLS OF THIS KIND WOULD BE SOME MODIFICATION OF DETAILS SHOWN ON PLATE IV.

SECTIONS B AND C SHOW TWO DETAILS FOR WINDOWS IN "HALF TIMBER" WORK ON A FRAME HOUSE. AS THERE ARE SO MANY WAYS OF APPLYING THE TIMBERS AND PLASTER, THESE DETAILS ARE GIVEN ONLY AS SUGGESTIONS AND WOULD HAVE TO BE MODIFIED TO SUIT INDIVIDUAL CASES. THE PLASTER (ROUGH CAST OR PEBBLE DASH) SHOWN IN DETAILS B AND C IS PUT ON METAL LATH FASTENED DIRECTLY TO THE OUTSIDE SHEATHING, WHICH IS FIRST COVERED WITH HEAVY ROSIN SIZED BUILDING PAPER. THE METAL LATH SHOULD, OF COURSE, BE HELD SLIGHTLY FREE FROM THE FACE OF THE SHEATHING BY STIFFENERS IN THE LATH OR BY THIN FURRING STRIPS. SECTION D SHOWS THE SAME CONSTRUCTION APPLIED TO A MASONRY WALL, THOUGH IN THIS CASE THE PLASTER IS APPLIED DIRECTLY TO THE WALL WITHOUT LATHING OF ANY KIND.

SECTION E IS FOR A WINDOW IN A BRICK WALL PLASTERED ON THE OUTSIDE. WINDOWS IN MASONRY WALLS WITH OUTSIDE PLASTER ARE SOMETIMES MADE SIMILAR TO DETAILS ON PLATE IV, IN WHICH CASE THE PLASTER IS RETURNED ON THE JAMBS BEHIND THE STAFF BEAD.

SMALL SCALE SECTIONS ARE GIVEN AS SUGGESTIONS FOR SILLS OF WINDOWS DETAILED AS ABOVE. FOR FURTHER SUGGESTIONS, SEE WOOD SILLS ON PLATES VI, VIII, IX.

MISCELLANEOUS DETAILS FOR DOUBLE HUNG WINDOWS.

FOR SHAM HALF TIMBER CONSTRUCTION SEE PLATE XXVIII.

PLATE X

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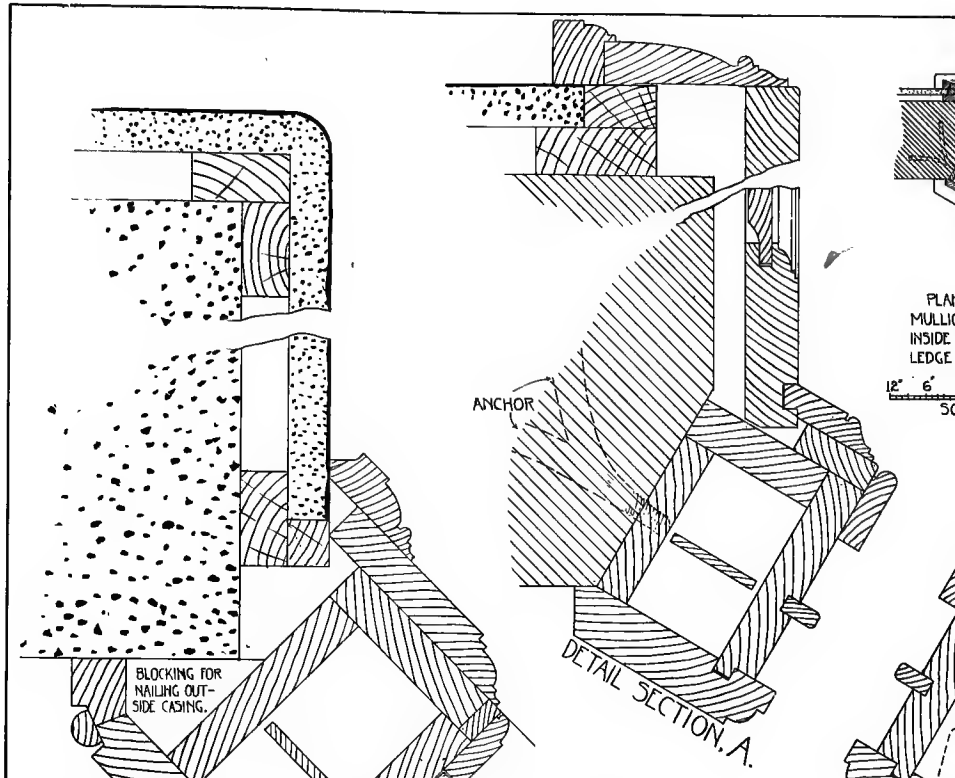
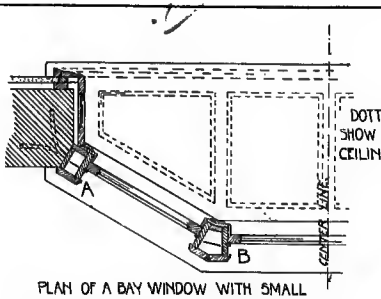
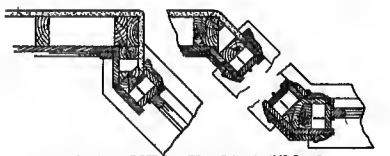




PLAN OF A BAY WINDOW WITH SMALL MULLIONS, AND WITH STOOL CARRIED IN TO INSIDE LINE OF WALL FORMING A DEEP WINDOW LEDGE OR SEAT.

12" 6' 0 1' 2' 3' 4'
SCALE FOR SMALL DRAWINGS. (⅜" TO 12").



TWO SUGGESTION FOR BAY WINDOWS IN FRAME WALLS.

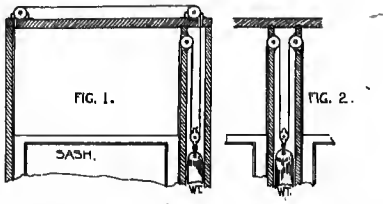
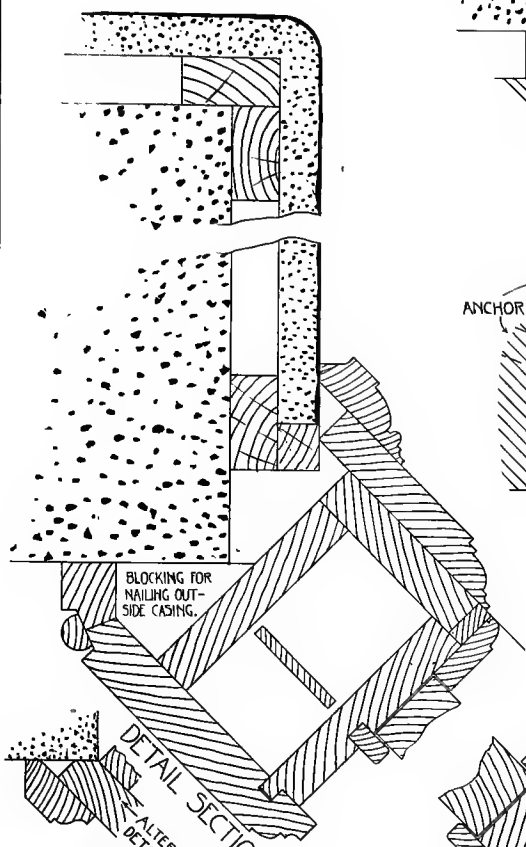
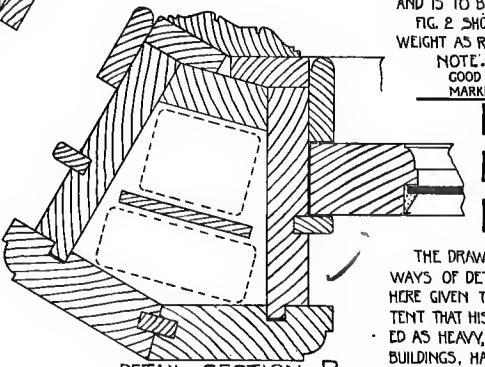


FIG. 1 IS A SECTION SHOWING HOW A SASH CAN BE EVENLY COUNTERBALANCED WHEN IT MAY BE POSSIBLE TO HAVE A WEIGHT BOX ONLY AT ONE SIDE. THIS IS NOT A VERY SATISFACTORY SCHEME AND IS TO BE USED ONLY IN CASE OF NECESSITY.

FIG. 2 SHOWS THE METHOD OF HANGING TWO SASHES TO ONE WEIGHT AS REQUIRED BY DETAIL SECTION, B.

NOTE. SINCE THE ABOVE DRAWINGS WERE MADE SEVERAL GOOD OVERHEAD AND MULLION PULLEYS HAVE BEEN PUT ON THE MARKET.





DETAILS OF BAY WINDOWS WITH COUNTERBALANCED SASHES.

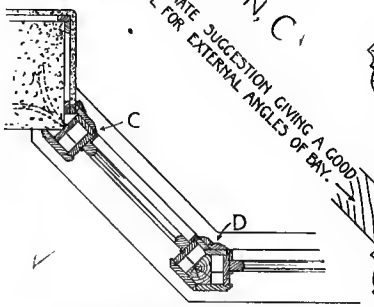
THE DRAWINGS ON THIS PLATE SHOW ONLY A FEW OF THE MANY WAYS OF DETAILING BAY WINDOWS, BUT WITH THE PRINCIPLES HERE GIVEN THE STUDENT CAN MODIFY AND ELABORATE TO ANY EXTENT THAT HIS DESIGN MAY REQUIRE. THE MULLIONS MAY BE TREATED AS HEAVY, MOLDED MEMBERS, OR THEY MAY, IN MASONRY BUILDINGS, HAVE STONE MULLIONS ON THE OUTSIDE *(SEE PLATE VII)*.

A BAY WINDOW MAY BE CARRIED TO THE FLOOR AND CEILING OF A ROOM; OR IT MAY FINISH ON THE INSIDE WALL OF THE ROOM AS ONE LARGE WINDOW WITH A BROAD STOOL, OR SEAT, AND WIDE HEAD CASING, THE HEAD CASING OFTEN BEING FINISHED AS A PANELED CEILING.

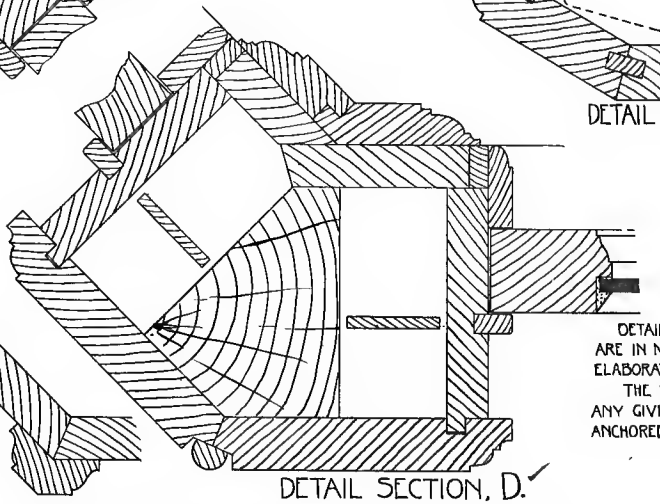
THE JAMBS IN FINE WORK ARE OFTEN FINISHED WITH PILASTERS CARRYING AN ARCH OR AN ENTABLATURE AT THE CEILING OF THE BAY, BELOW THE CEILING OF THE ROOM. PLAIN JAMBS MAY BE PANELED IN WOOD, OR PLASTERED, ACCORDING TO COST OF WORK.

DETAILS C AND D SHOW PLAIN ORDINARY CONSTRUCTION; A AND B SHOW CONSTRUCTION WHERE THE DESIGN MAY REQUIRE VERY SMALL MULLIONS. IN B LEAD WEIGHTS, MADE TO FIT THE BOX, ARE EACH HUNG TO TWO SASHES AS IN FIG. 2, ABOVE. DETAILS OF HEADS AND SILLS ARE NOT SHOWN HERE, BECAUSE, IF SIMPLE IN CONSTRUCTION THEY ARE IN NO WAY DIFFERENT FROM THE HEADS AND SILLS OF PLAIN WINDOWS; AND IF MORE ELABORATE, THE ELABORATION IS A MATTER OF DESIGN RATHER THAN OF CONSTRUCTION.

THE SIZE, PROJECTION, ANGLES, ETC., ARE ALL VARIABLE TO SUIT THE REQUIREMENTS OF ANY GIVEN PROBLEM. BAYS PROJECTING FROM MASONRY WALLS SHOULD ALWAYS BE WELL ANCHORED. IRON JAMB SCREW ANCHORS ARE COMMONLY USED.



PLAN OF AN ORDINARY BAY WINDOW IN A STONE WALL.



1' ½' 0 1' 2' 3' 4' 5' 6' 7' 8' 9' 10'
SCALE FOR DETAILS (3" TO 12").

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PLATE XI

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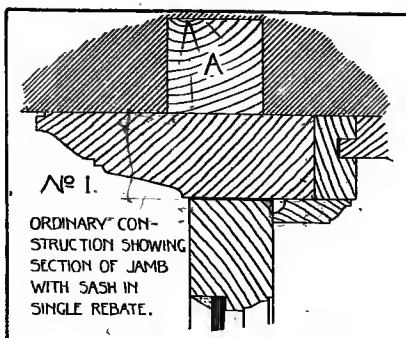
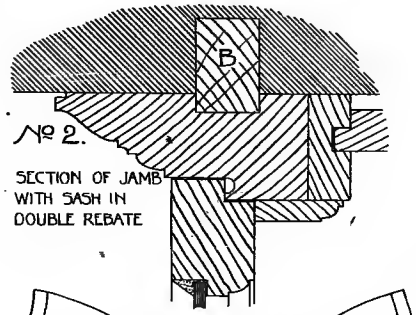


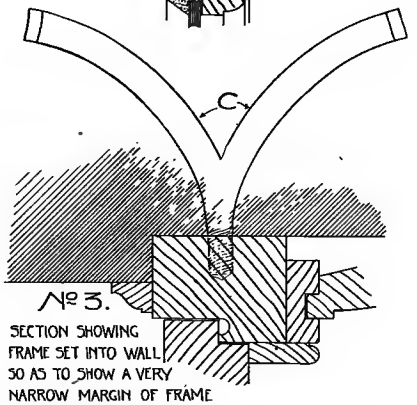
№ 1.

ORDINARY CONSTRUCTION SHOWING SECTION OF JAMB WITH SASH IN SINGLE REBATE.



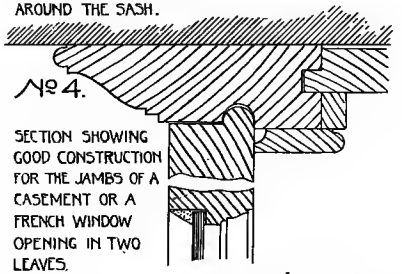
№ 2.

SECTION OF JAMB WITH SASH IN DOUBLE REBATE



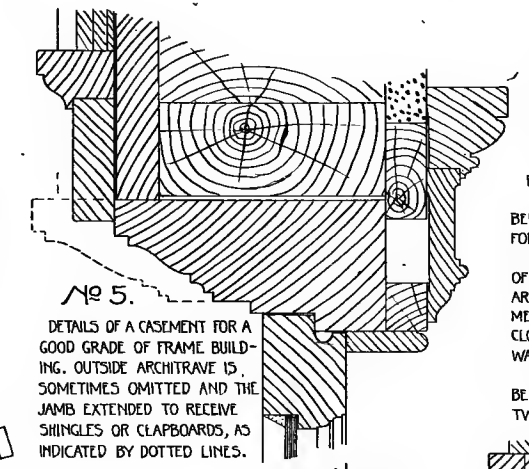
№ 3.

SECTION SHOWING FRAME SET INTO WALL SO AS TO SHOW A VERY NARROW MARGIN OF FRAME AROUND THE SASH.



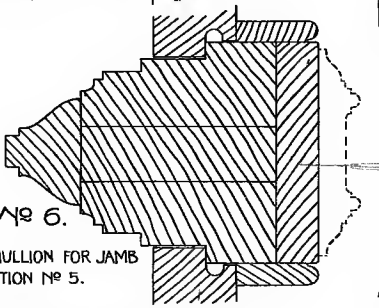
№ 4.

SECTION SHOWING GOOD CONSTRUCTION FOR THE JAMBS OF A CASEMENT OR A FRENCH WINDOW OPENING IN TWO LEAVES.



№ 5.

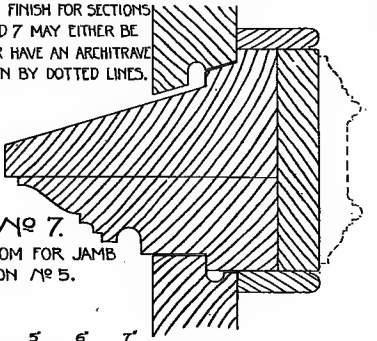
DETAILS OF A CASEMENT FOR A GOOD GRADE OF FRAME BUILDING. OUTSIDE ARCHITRAVE IS SOMETIMES OMITTED AND THE JAMB EXTENDED TO RECEIVE SHINGLES OR CLAPBOARDS, AS INDICATED BY DOTTED LINES.



№ 6.

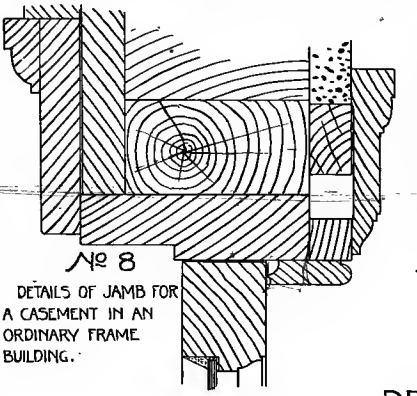
MULLION FOR JAMB SECTION № 5.

INTERIOR FINISH FOR SECTIONS № 6 AND 7 MAY EITHER BE PLAIN OR HAVE AN ARCHITRAVE AS SHOWN BY DOTTED LINES.



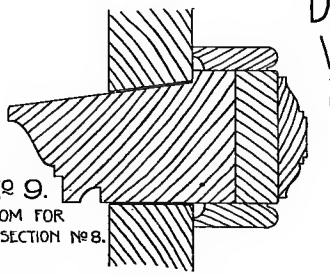
№ 7.

TRANSOM FOR JAMB SECTION № 5.



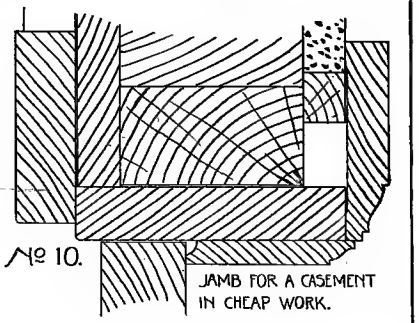
№ 8

DETAILS OF JAMB FOR A CASEMENT IN AN ORDINARY FRAME BUILDING.



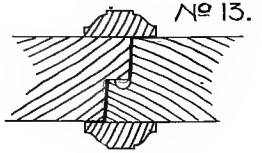
№ 9.

TRANSOM FOR JAMB SECTION № 8.



№ 10.

JAMB FOR A CASEMENT IN CHEAP WORK.



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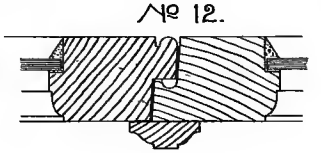
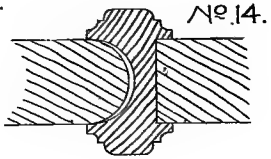


№ 12.

№ 13.



№ 14.

NOTES.

THE ONE GREAT OBJECTION TO CASEMENT WINDOWS IS THAT IT IS VERY DIFFICULT TO MAKE THEM SECURE AGAINST WIND AND RAIN. THIS IS LESS DIFFICULT WITH CASEMENTS OPENING OUTWARD THAN WITH THOSE OPENING INWARD. WHERE THE CHARACTER OF THE WORK WILL ADMIT, IT IS BEST TO SET SASHES IN A DOUBLE REBATE; AND THERE SHOULD ALWAYS BE A GROOVE AT THE SIDE, EITHER IN JAMB OR SASH, SO THAT WATER BEATING IN WILL BE CARRIED DOWN TO THE SILL. THE TROUBLE WITH A DOUBLE REBATE IS THAT IT IS HARD TO GET A LOCK THAT IS BOTH SMALL ENOUGH FOR THE SASH AND HAS THE KEY OR TURN FAR ENOUGH BACK TO COME INSIDE OF THE STOP BEAD; HENCE CARE SHOULD BE TAKEN TO MAKE SASH DEEP ENOUGH AND REBATES NOT TOO DEEP FOR LOCKS.

SASHES FOR CASEMENTS REQUIRE TO BE HEAVIER THAN FOR COUNTERBALANCED WINDOWS, BECAUSE, BEING HINGED AT SIDES (USUALLY), THERE IS MORE STRAIN ON THEM. THE SIZES SHOWN HERE ARE SUITABLE FOR SMALL SASHES ONLY.

SECTIONS 1, 2, 3, & 4 ARE FOR CASEMENTS IN MASONRY WALLS, AND A, B & C SHOW VARIOUS METHODS OF FASTENING THEM INTO WALLS, C BEING AN IRON JAMB-SCREW ANCHOR. SECTIONS 5 TO 10 INCLUSIVE ARE DETAILS FOR CASEMENTS IN FRAME WALLS. SECTIONS 11, 12, 13, & 14 ARE MEETING STILES FOR CASEMENTS OR FRENCH WINDOWS HUNG IN TWO LEAVES. SECTION 14 REQUIRES THAT BOTH SASHES BE OPENED AND CLOSED TOGETHER, AND THE CRESCENT SHAPED SPACE IS NECESSARY TO ALLOW FOR THE SLIGHT THROW FORWARD GIVEN BY THE HINGES WHICH TURN ON A CENTER OUTSIDE OF THE SASHES.

INTERIOR AND EXTERIOR DETAILS MAY BE VARIED INDEFINITELY TO SUIT THE GENERAL DESIGN. SILLS MAY BE THE SAME AS SHOWN ON OTHER PLATES OF THIS SERIES, THERE BEING NO ESSENTIAL DIFFERENCE BETWEEN SILLS FOR DOUBLE HUNG WINDOWS AND FOR OUTWARD OPENING CASEMENTS.

DETAILS OF CASEMENT WINDOWS OPENING OUTWARD.

c.a.m.

PLATE XII

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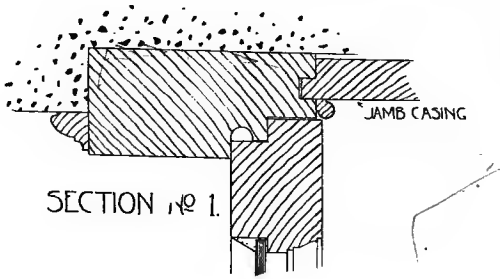
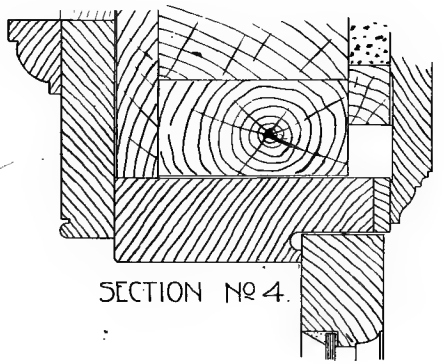


SECTION № 1.



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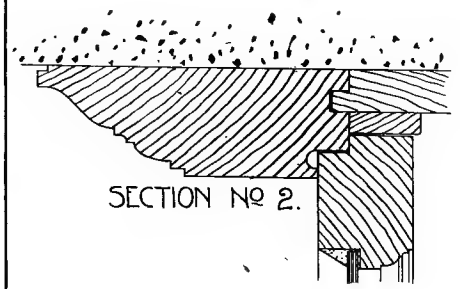

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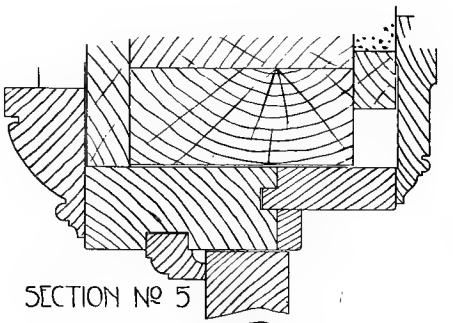

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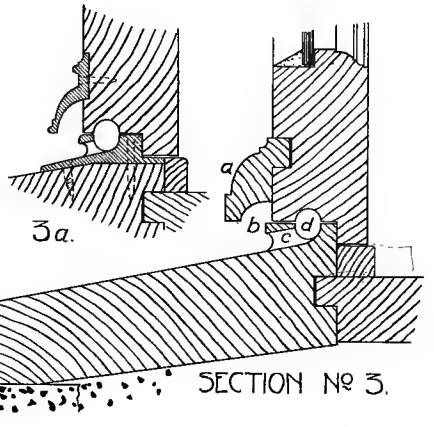
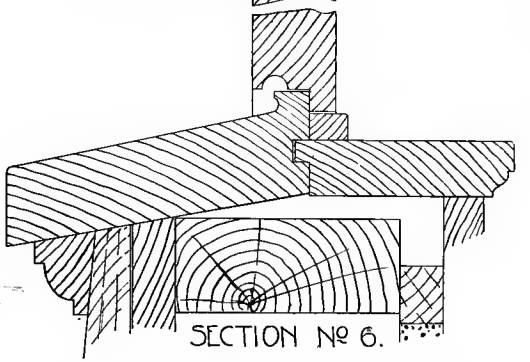


SECTION № 3.



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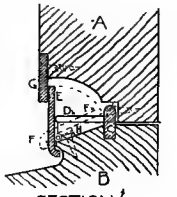
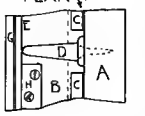


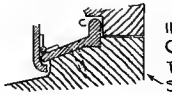
SECTION.

PLAN.

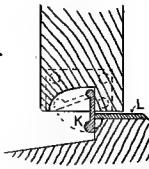


DETAILS AND DESCRIPTION FROM THE "DICTIONARY OF ARCHITECTURE. ISSUED BY THE ARCHITECTURAL PUBLICATION SOCIETY", LONDON, ENG.

–"A NEW KIND OF WATER BAR FOR FRENCH CASEMENTS POSSESSING MANY ADVANTAGES, AND WHICH HAS PROVED SUCCESSFUL IN USE FOR SOME YEARS. IT IS ALSO APPLICABLE TO EXTERNAL DOORS. AS WHEN THE WATER BAR IS FORCED DOWN BY THE COVER FILLET, THE APPARATUS OFFERS NO IMPEDIMENT TO THE FOOT, AND WHEN RAISED IS ABSOLUTELY WEATHER-TIGHT. A, SECTION OF A 2½" CASEMENT. B, SILL. C, METAL BEAD, WITH OPENINGS FOR AN ARM, D, TO MOVE THROUGH, AS SHEWN IN PLAN. D, METAL ARM FIXED TO CASEMENT (ONE IN THE CENTER OF EACH CASEMENT), TO LIFT THE WATER BAR, E, IN CLOSING THE CASEMENT. E, METAL WATER BAR, HINGED AT H, LIFTED BY THE ARM, D, AND FORCED BY IT AGAINST G, A METAL COVER FILLET FASTENED TO THE OUTSIDE OF THE CASEMENT. F, SHOWS THE POSITION OF THE WATER BAR WHEN THE CASEMENT IS OPEN, TO ALLOW THE COVER FILLET, G, TO PASS OVER IT. THIS ARRANGEMENT IS FOUND IN PRACTICE TO BE MOST EFFICIENT, AND TO KEEP FOR A LONG TIME IN PERFECT WORKING ORDER."



IT WOULD SEEM THAT THE ABOVE DEVICE MIGHT BE IMPROVED AND STRENGTHENED BY MAKING THE BEAD C A PART OF A METAL PLATE COVERING THE TOP OF THE WOOD SILL, AS SHOWN IN THE ADJOINING SKETCH.



THIS DRAWING SHOWS A SECTION OF A WEATHER STRIP MADE BY ENOCH ROBINSON, BOSTON, MASS. WHEN THE CASEMENT IS OPENED THE WATER BAR K IS LIFTED AND KEPT UP BY THE PLATE L WHICH RUNS THE FULL LENGTH OF THE SILL. THIS COMMENDS ITSELF AS AN EXCELLENT DEVICE WHERE THE WINDOW [OR DOOR] DOES NOT OPEN FAR ENOUGH TO THROW THE WATER BAR OFF THE PLATE AT THE HINGE SIDE OF THE SASH. THIS DIFFICULTY COULD, HOWEVER, BE EASILY MET BY EXTENDING THE SILL PLATE AT THAT END IN SUCH A WAY AS TO FORM A TRACK TO HOLD THE BAR UP THROUGH ANY ARC IN WHICH IT MAY BE DESIRABLE TO SWING THE SASH OR DOOR.

DETAILS OF CASEMENT WINDOWS OPENING IN.

1' ½" 0 1" 2" 3" 4" 5" 6" 7" 8" 9" 10"

SCALE (3" TO 12").

READ NOTES ON PLATE XII. SEE ALSO PLATES XIV, XV, & XVI.

NOTES.

THE SPECIAL DIFFICULTY ALWAYS MET WITH IN CASEMENTS OPENING IN IS THAT IT IS NEXT TO IMPOSSIBLE TO MAKE SILLS THAT ARE PERFECTLY WEATHER-PROOF. SECTIONS 1, 2, 4, AND 5 SHOW VARIOUS JAMB SECTIONS ADAPTABLE TO DIFFERENT KINDS OF WORK. SILL SECTION № 6 IS A GOOD ENOUGH FORM FOR CHEAP WORK OR WHERE WINDOWS ARE WELL SHELTERED. № 3 IS A MORE ELABORATE AND CAREFULLY STUDIED SECTION: THE DRIP MOLDING *a* CARRIES THE WATER OUT AND AWAY FROM THE JOINT AT THE BOTTOM OF SASH, THE RAISED LIP *b*, ON SILL, TENDS TO TURN BACK WATER THAT THE WIND WOULD OTHERWISE DRIVE IN UNDER THE SASH, WHILE ANY WATER THAT MAY FINALLY GET INSIDE OF THIS POINT IS COLLECTED IN THE GROOVE *d* AND CARRIED OUT THROUGH THE HOLES *c* WHICH ARE ⅜" IN DIAMETER AND ABOUT 5" OR 6" APART. IT WOULD BE AN IMPROVEMENT IF THE ESSENTIAL FEATURES OF № 3 COULD BE MADE IN STEEL OR BRONZE AS SUGGESTED BY SECTION *3a*.

IN ENGLAND CASEMENTS ARE FREQUENTLY MADE WITH FRAMES AND SASHES OF IRON, AND THE FORMS OF CONSTRUCTION USED TO EXCLUDE WIND AND RAIN ARE SOMETIMES VERY ELABORATE.

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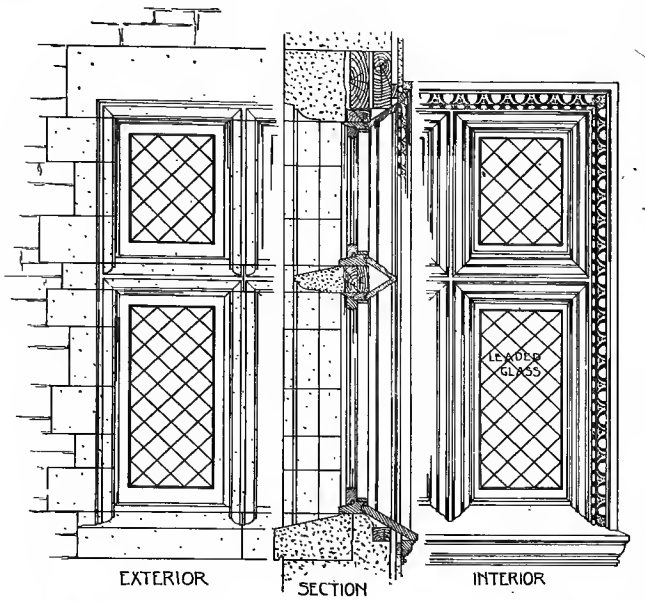
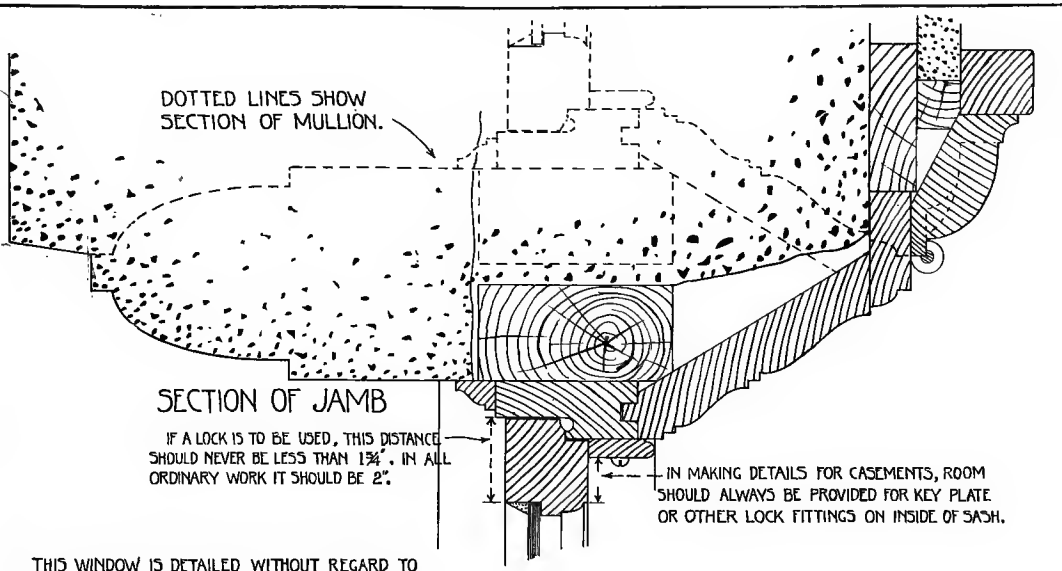
cam.

PLATE XIII



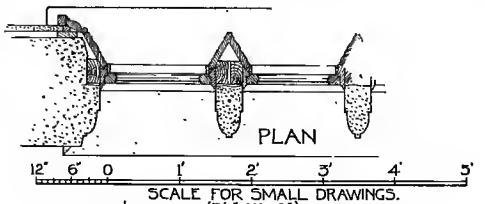


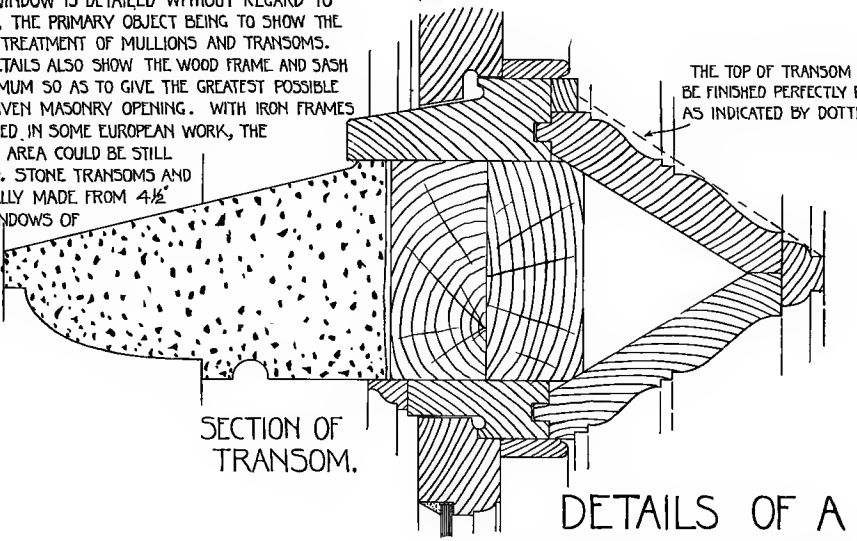
SECTION OF JAMB

IF A LOCK IS TO BE USED, THIS DISTANCE SHOULD NEVER BE LESS THAN 1¾". IN ALL ORDINARY WORK IT SHOULD BE 2".

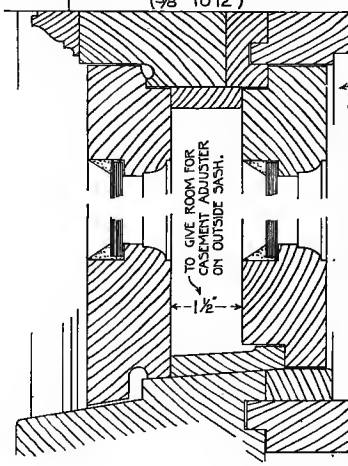
IN MAKING DETAILS FOR CASEMENTS, ROOM SHOULD ALWAYS BE PROVIDED FOR KEY PLATE OR OTHER LOCK FITTINGS ON INSIDE OF SASH.

THIS WINDOW IS DETAILED WITHOUT REGARD TO EXPENSE, THE PRIMARY OBJECT BEING TO SHOW THE GENERAL TREATMENT OF MULLIONS AND TRANSOMS. THE DETAILS ALSO SHOW THE WOOD FRAME AND SASH REDUCED TO A MINIMUM SO AS TO GIVE THE GREATEST POSSIBLE GLASS AREA IN A GIVEN MASONRY OPENING. WITH IRON FRAMES AND SASHES, AS USED IN SOME EUROPEAN WORK, THE COMPARATIVE GLASS AREA COULD BE STILL FURTHER INCREASED. STONE TRANSOMS AND MULLIONS ARE USUALLY MADE FROM 4½" TO 6" THICK IN WINDOWS OF THIS CHARACTER.

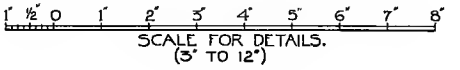




SECTION OF TRANSOM.



THIS DETAIL SHOWS SECTIONS OF A CASEMENT WINDOW WITH DOUBLE SASH FOR VERY EXPOSED SITUATIONS. ALL OF THE FINISH INSIDE OF THE OUTER SASH SHOULD CORRESPOND WITH INSIDE FINISH SO THAT THE INNER SASH MAY BE REMOVED IN SUMMER. WHEN THIS SASH IS REMOVED THE HINGE SCREW HOLES AND LOCK PLATE CAN BE COVERED WITH A TEMPORARY STRIP SET IN THE REBATE, OR A MOSQUITO SCREEN MAY BE SET IN THE PLACE OF THE SASH.



DETAILS OF A CASEMENT WINDOW

WITH MULLIONS AND TRANSOMS, AND WITH SASHES OPENING OUTWARD.

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PLATE XIV

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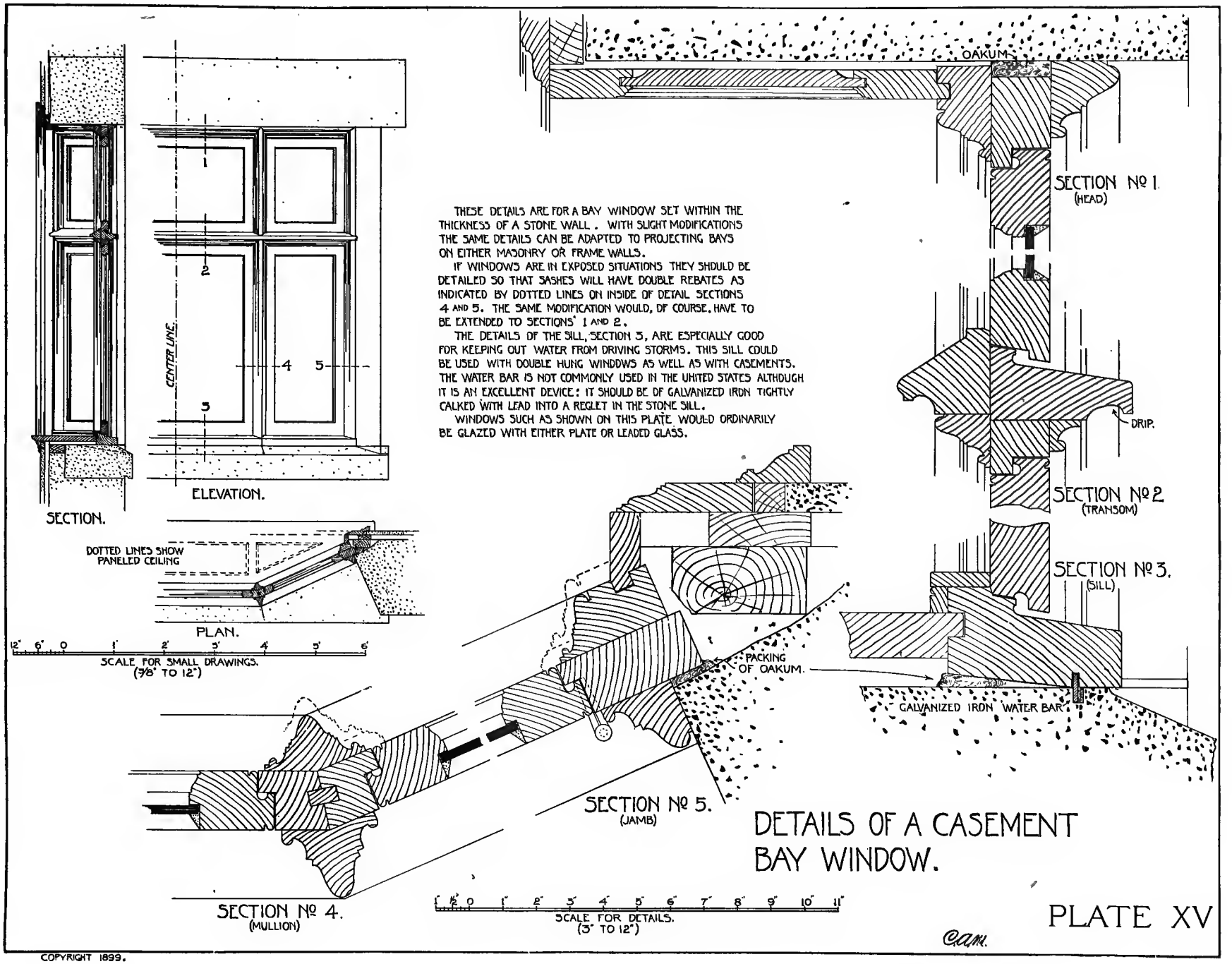

THESE DETAILS ARE FOR A BAY WINDOW SET WITHIN THE THICKNESS OF A STONE WALL. WITH SLIGHT MODIFICATIONS THE SAME DETAILS CAN BE ADAPTED TO PROJECTING BAYS ON EITHER MASONRY OR FRAME WALLS.

IF WINDOWS ARE IN EXPOSED SITUATIONS THEY SHOULD BE DETAILED SO THAT SASHES WILL HAVE DOUBLE REBATES AS INDICATED BY DOTTED LINES ON INSIDE OF DETAIL SECTIONS 4 AND 5. THE SAME MODIFICATION WOULD, OF COURSE, HAVE TO BE EXTENDED TO SECTIONS 1 AND 2.

THE DETAILS OF THE SILL, SECTION 3, ARE ESPECIALLY GOOD FOR KEEPING OUT WATER FROM DRIVING STORMS. THIS SILL COULD BE USED WITH DOUBLE HUNG WINDOWS AS WELL AS WITH CASEMENTS. THE WATER BAR IS NOT COMMONLY USED IN THE UNITED STATES ALTHOUGH IT IS AN EXCELLENT DEVICE: IT SHOULD BE OF GALVANIZED IRON TIGHTLY CALKED WITH LEAD INTO A REGLET IN THE STONE SILL.

WINDOWS SUCH AS SHOWN ON THIS PLATE WOULD ORDINARILY BE GLAZED WITH EITHER PLATE OR LEADED GLASS.

DETAILS OF A CASEMENT BAY WINDOW.

PLATE XV

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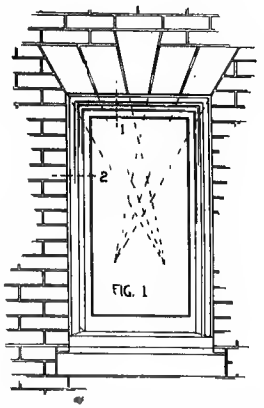
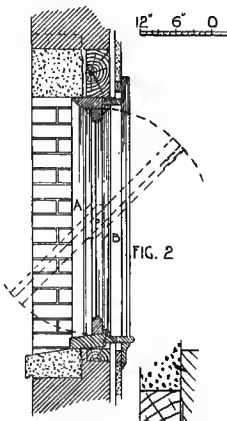
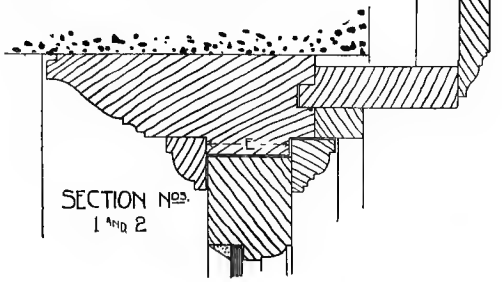
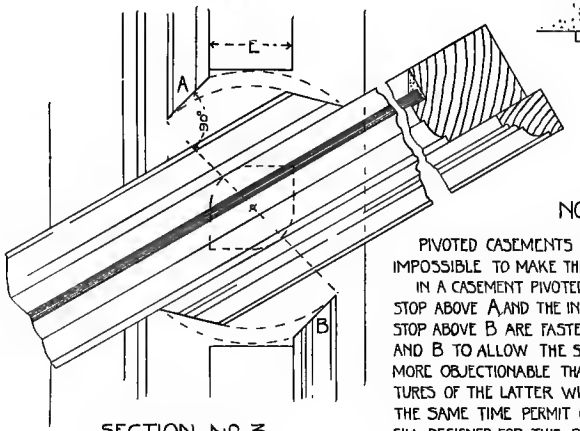




ELEVATION AND SECTION OF A CASEMENT PIVOTED ON A HORIZONTAL AXIS.

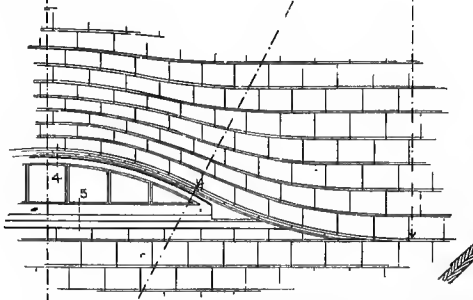


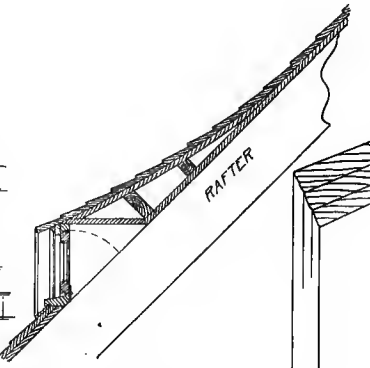
SECTION No 3. 1 AND 2



SECTION No 3 (SEE NOTES)

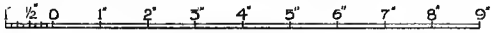
SCALE FOR SMALL DRAWINGS. (3/8" TO 12")



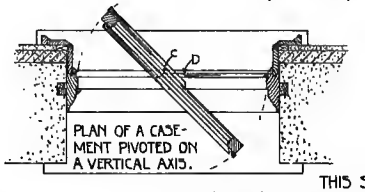


DETAILS OF AN EYEBROW WINDOW.

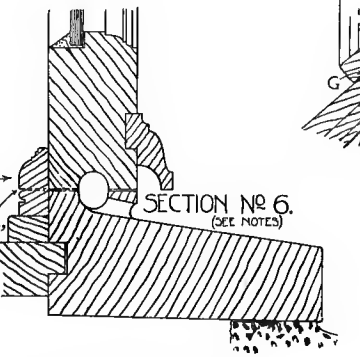
AS ORDINARILY CONSTRUCTED, THESE WINDOWS ARE VERY UGLY; BUT IF THEY ARE CAREFULLY PROPORTIONED SO AS TO AVOID TOO MUCH HEIGHT AT THE MIDDLE, AND IF THE REVERSE CURVE IS CARRIED OUT TO DIE INTO THE ROOF WITHOUT A HUMP OR BREAK, THEY CAN BE MADE TO LOOK VERY WELL. THEIR ORDINARY USE IS TO LIGHT AND VENTILATE UNFINISHED ATTICS.



SCALE FOR DETAILS. (3" TO 12")

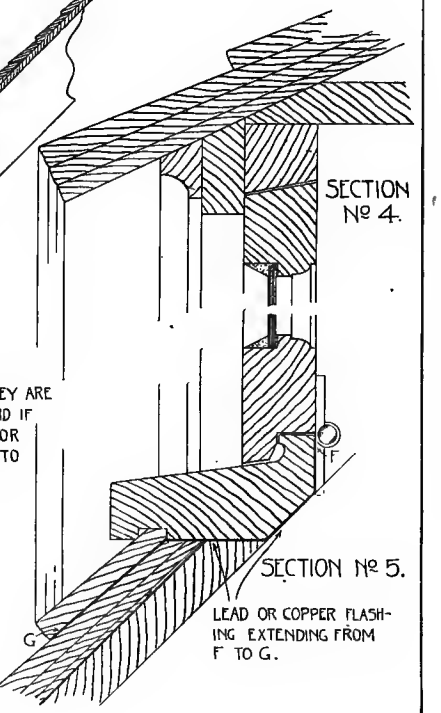


PLAN OF A CASEMENT PIVOTED ON A VERTICAL AXIS.



THIS STOP IS CUT AT D (SEE PLAN) DOWN TO DOTTED LINE, THEN SLIT TO POINT C AND CUT ENTIRELY THROUGH. ONE PIECE IS THEN FASTENED TO THE SASH AND THE OTHER TO THE SILL.

SECTION No 6. (SEE NOTES)



SECTION No 4.

SECTION No 5.

LEAD OR COPPER FLASHING EXTENDING FROM F TO G.

NOTES AND EXPLANATIONS.

PIVOTED CASEMENTS SHOULD NOT BE USED IN POSITIONS EXPOSED TO SEVERE STORMS OR COLD, AS IT IS PRACTICALLY IMPOSSIBLE TO MAKE THEM WEATHER-PROOF, ESPECIALLY ABOUT THE PIVOTS, IN WOODEN CONSTRUCTION.

IN A CASEMENT PIVOTED ON THE HORIZONTAL AXIS, FIGS. 1 AND 2, THE STOP BEADS ARE CUT AT A AND B, AND THE OUTSIDE STOP ABOVE A AND THE INSIDE STOP BELOW B ARE FASTENED TO THE FRAME; WHILE THE OUTSIDE STOP BELOW A AND THE INSIDE STOP ABOVE B ARE FASTENED TO THE SASH, THE PROJECTING PART E OF FRAME BEING CUT AWAY BETWEEN POINTS A AND B TO ALLOW THE SASH TO TURN, - SEE DETAIL SECTION No 3. CASEMENTS PIVOTED ON A VERTICAL AXIS ARE STILL MORE OBJECTIONABLE THAN THOSE PIVOTED ON A HORIZONTAL AXIS, BECAUSE THEY PRESENT ALL OF THE OBJECTIONABLE FEATURES OF THE LATTER WITH THE ADDITIONAL DIFFICULTY OF SILLS THAT MUST BE DESIGNED TO KEEP OUT WEATHER AND AT THE SAME TIME PERMIT ONE HALF OF THE SASH TO OPEN IN AND THE OTHER HALF TO OPEN OUT. SECTION No 6 SHOWS A SILL DESIGNED FOR THIS PURPOSE; THE OTHER DETAILS FOR THIS WINDOW WOULD BE IN ALL ESSENTIALS THE SAME AS FOR THOSE PIVOTED ON A HORIZONTAL AXIS.

CIRCULAR OR ELLIPTICAL WINDOWS ARE LIKELY TO BE TROUBLESOME, SINCE IF PIVOTED THEY ARE NOT STORM PROOF, AND IF STATIONARY ARE OFTEN DIFFICULT OF ACCESS FOR CLEANING ON THE OUTSIDE. MOREOVER, IT IS HARD TO BUILD THE LOWER HALF ON THE OUTSIDE SO THAT STORM WATER WILL BE CARRIED OFF AS BY THE SILL AND DRIP OF AN ORDINARY WINDOW.

SEE NOTES ON PLATES XII AND XIII

DETAILS OF PIVOTED CASEMENTS AND EYEBROW DORMERS.

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PLATE XVI

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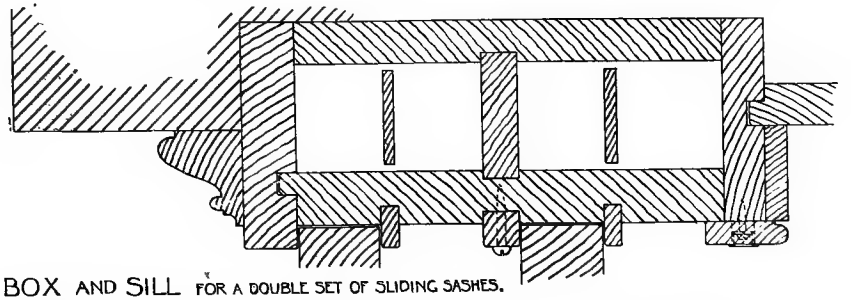
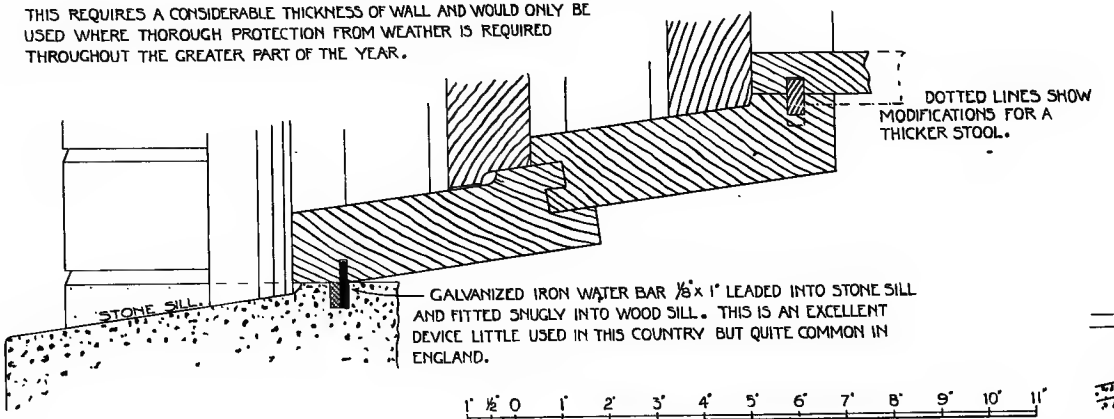
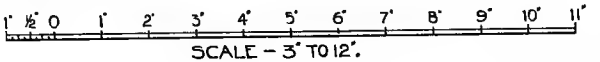


BOX AND SILL FOR A DOUBLE SET OF SLIDING SASHES. THIS REQUIRES A CONSIDERABLE THICKNESS OF WALL AND WOULD ONLY BE USED WHERE THOROUGH PROTECTION FROM WEATHER IS REQUIRED THROUGHOUT THE GREATER PART OF THE YEAR.



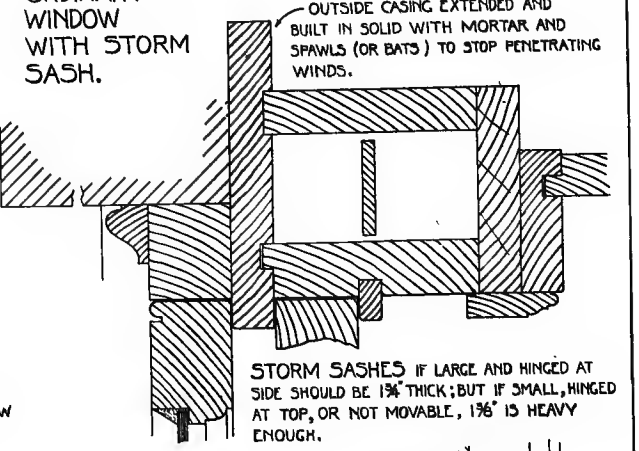
DOTTED LINES SHOW MODIFICATIONS FOR A THICKER STOOL.

GALVANIZED IRON WATER BAR ⅛" x 1" LEADED INTO STONE SILL AND FITTED SNUGLY INTO WOOD SILL. THIS IS AN EXCELLENT DEVICE LITTLE USED IN THIS COUNTRY BUT QUITE COMMON IN ENGLAND.



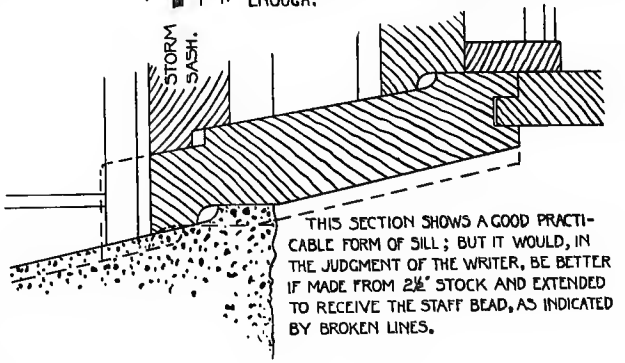
SCALE – 3" TO 12".

ORDINARY WINDOW WITH STORM SASH.



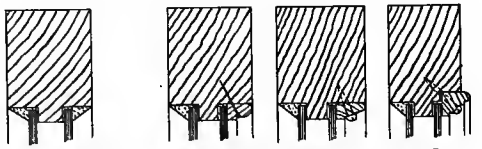
OUTSIDE CASING EXTENDED AND BUILT IN SOLID WITH MORTAR AND SPAWLS (OR BATS) TO STOP PENETRATING WINDS.

STORM SASHES IF LARGE AND HINGED AT SIDE SHOULD BE 1¾" THICK; BUT IF SMALL, HINGED AT TOP, OR NOT MOVABLE, 1⅜" IS HEAVY ENOUGH.



THIS SECTION SHOWS A GOOD PRACTICABLE FORM OF SILL; BUT IT WOULD, IN THE JUDGMENT OF THE WRITER, BE BETTER IF MADE FROM 2½" STOCK AND EXTENDED TO RECEIVE THE STAFF BEAD, AS INDICATED BY BROKEN LINES.

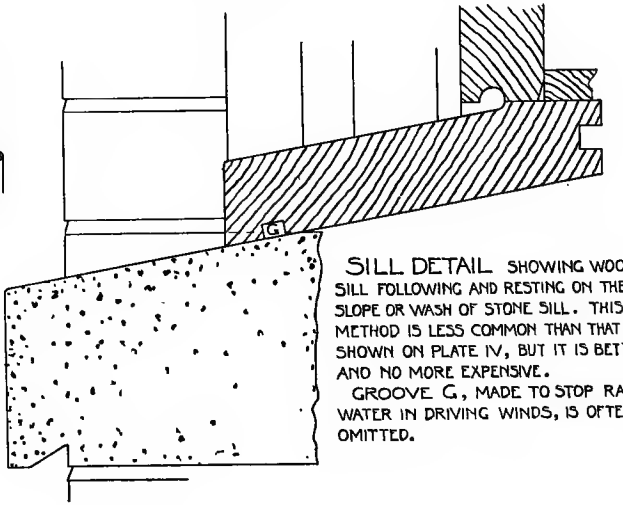
DOUBLE GLAZED SASHES.



PUTTY ON BOTH SIDES OF SASH.

PUTTY OUTSIDE AND MOLDING INSIDE, BUT ALL GLASS BEDDED IN PUTTY

SASHES ARE SOMETIMES DOUBLE GLAZED AS A PROTECTION AGAINST COLD; BUT THIS IS NOT ADVISABLE WITH CLEAR GLASS, AS FINE DUST IS ALMOST SURE TO WORK IN BETWEEN INNER AND OUTER PANES, THE GLASS "SWEATS" MORE OR LESS IN COLD WEATHER, AND BETWEEN DUST AND MOISTURE A THIN FILM GATHERS ON THE INNER SURFACES AND DESTROYS THE CLEARNESS OF THE GLASS. IF TINTED OR COLORED GLASS IS USED THE EFECTS OF THE DUST AND MOISTURE ARE LESS APPARENT AND NOT LIKELY TO BE ANNOYING, IF GLAZING IS WELL DONE.



SILL DETAIL SHOWING WOOD SILL FOLLOWING AND RESTING ON THE SLOPE OR WASH OF STONE SILL. THIS METHOD IS LESS COMMON THAN THAT SHOWN ON PLATE IV, BUT IT IS BETTER AND NO MORE EXPENSIVE.

GROOVE G, MADE TO STOP RAIN WATER IN DRIVING WINDS, IS OFTEN OMITTED.

STORM RESISTING WINDOWS.

STORM SASHES COULD BE USED IN PLACE OF OUTSIDE SHUTTERS OR BLINDS WITH DETAILS ON PLATES VI, VIII, AND IX.

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PLATE XVII

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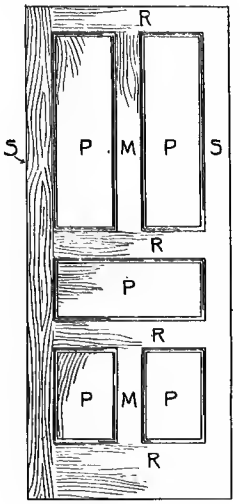
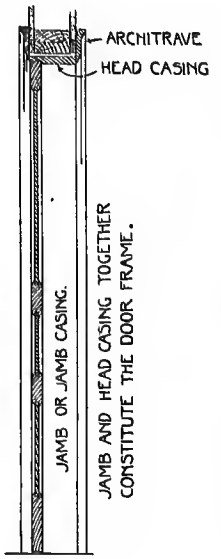


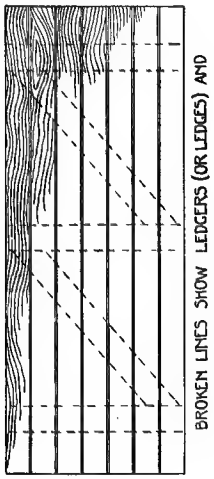
№ 1.

M - MUNTINS
P - PANELS
R - RAILS
S - STILES

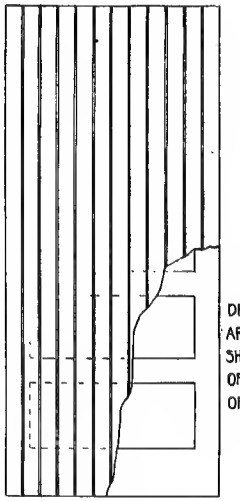
HEIGHT FROM FLOOR TO CENTER OF KNOB OR THUMB PIECE OF LATCH SHOULD BE FROM 2'.9" TO 3'.



SECTION OF № 1

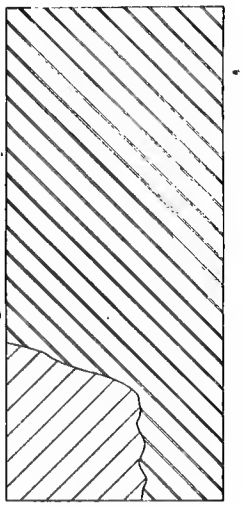


№ 2.



№ 3.

ON THESE TWO DRAWINGS THE FRONTS ARE BROKEN AWAY TO SHOW FRAMED UP CORE OF № 3 AND BACK OF № 4.



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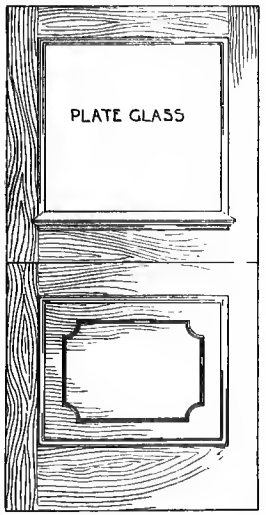

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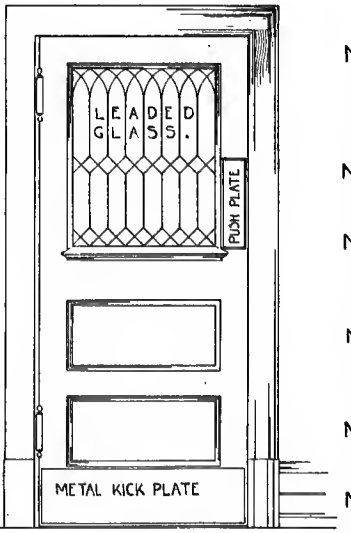

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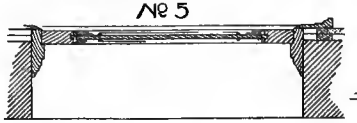
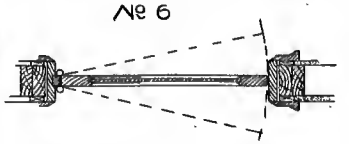




TYPES OF DOORS.

WITH GENERAL DISCUSSION.

№ 1. THIS IS AN ORDINARY PANELED DOOR, THE MOST COMMON TYPE OF DOOR IN USE. THE NUMBER AND ARRANGEMENT OF PANELS MAY BE VARIED INDEFINITELY AT THE OPTION OF THE DESIGNER. IT IS DESIRABLE, HOWEVER, SO TO DESIGN IT THAT THE LOCK WILL COME OPPOSITE A PANEL AND THUS AVOID WEAKENING THE DOOR BY CUTTING OFF TENONS FOR LOCK. A GOOD DOOR SHOULD BE BLIND TENONED SO THAT ENDS OF TENONS WILL NOT SHOW ON EDGES OF DOOR.

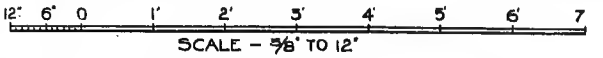
№ 2. - A LEDGED DOOR CONSISTING OF ORDINARY MATCHED BOARDS (USUALLY BEADED OR V'D) WITH LEDGERS (LEDGES) AND BRACES ON THE BACK. - NOT MUCH USED EXCEPT IN BOARD PARTITIONS OR SMALL CLOSETS IN CHEAP WORK

№ 3. A BATTEN DOOR WITH FRAMED UP CORE. THIS IS THE BEST METHOD OF CONSTRUCTING A BATTEN DOOR, BUT IS EXPENSIVE. TREATED ORNAMENTALLY WITH WROUGHT IRON HINGES, ETC., THIS TYPE OF DOOR MAY BE USED VERY EFFECTIVELY IN SOME PLACES. SOMETIMES BATTENS ARE PUT ON ONE SIDE OF A PANELED DOOR, THUS SHOWING AS A BATTEN DOOR ON ONE SIDE AND A PANELED DOOR ON THE OTHER.

№ 4. A SOLID BATTEN DOOR MADE OF TWO THICKNESSES OF ⅞" MATCHED BOARDS - USUALLY BEADED OR V'D - LAID DIAGONALLY, WITH THE BOARDS ON ONE SIDE AT RIGHT ANGLES TO THOSE ON THE OTHER. A SOLID DOOR OF THIS KIND COVERED WITH SHEET METAL - TIN, IRON, COPPER - WITH LOCK JOINTS AND WITH STRAP HINGES BOLTED ON MAKES THE BEST KIND OF FIRE DOOR. ASBESTOS PAPER IS SOMETIMES PUT UNDER THE METAL COVERING.

№ 5. A 'DUTCH DOOR', - USED FOR OUTSIDE DOORS ONLY. THE UPPER PART IS ARRANGED TO OPEN INDEPENDENTLY OF THE LOWER PART, A SLIDING BOLT FASTENING THE TWO PARTS TOGETHER WHEN REQUIRED TO WORK AS A SINGLE DOOR. THE UPPER PART MAY HAVE EITHER GLASS OR WOOD PANELS.

№ 6. A DOUBLE ACTING SERVICE DOOR FOR PANTRIES, ETC. GLASS IN UPPER PART PREVENTS COLLISIONS IN SERVICE. IN LARGE HOTELS WHERE ONE DOOR IS USED FOR ENTRANCE AND ANOTHER FOR EXIT THE GLASS IS USUALLY DISPENSED WITH AND DOORS ARE OFTEN COVERED WITH CLOTH OR LEATHER.



SCALE - ⅝" TO 12"

cam

PLATE XVIII

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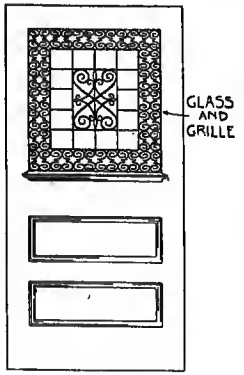

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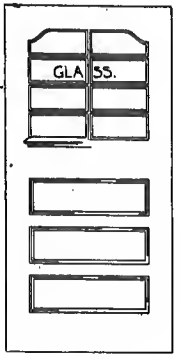

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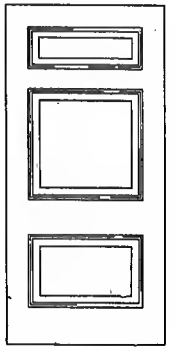

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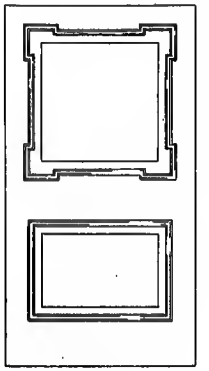

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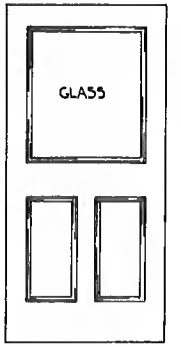

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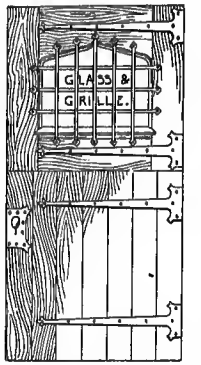
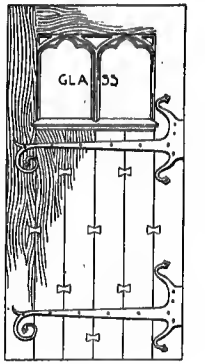


№ 6
A DUTCH BATTEN DOOR.



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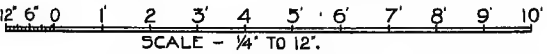
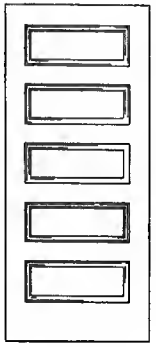


SCALE – ¼" TO 12".



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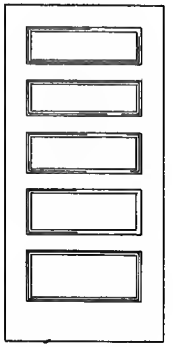

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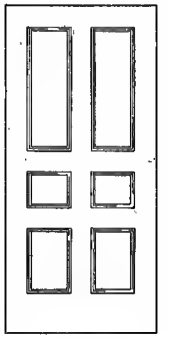

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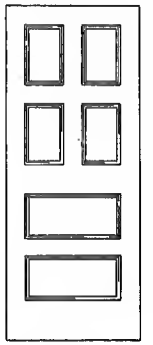

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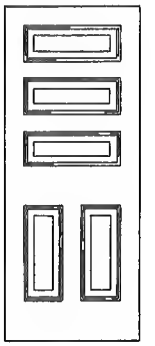

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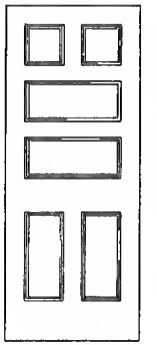

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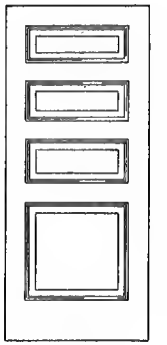

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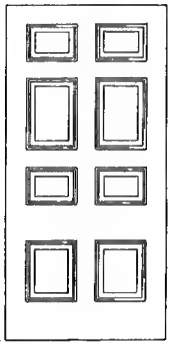

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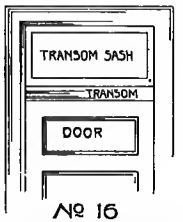
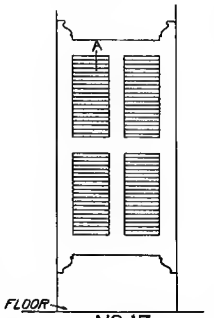
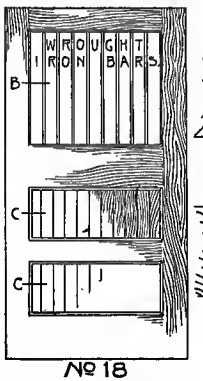


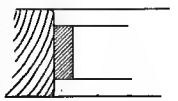
№ 16
A COMMON INTERIOR DOOR WITH TRANSOM.

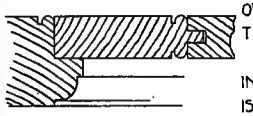


№ 17
A DOOR FOR BATH AND WATER CLOSET COMPARTMENTS.



№ 18
DOOR FOR BOX STALL IN A STABLE.





EXAMPLES OF DOORS
IN VARIOUS STYLES.

Nos 1 TO 7 ARE SUGGESTIONS FOR ENTRANCE DOORS AND Nos 8 TO 16 ARE SUGGESTIONS FOR INTERIOR DOORS

W. C. DOORS (№ 17) ARE SIMPLY TO SCREEN THE SEPARATE COMPARTMENTS AND SHOULD BE MADE SMALL AND LIGHT SLATS SHOULD OVERLAP SO AS TO CUT OFF ANY HORIZONTAL LINE OF VISION FROM THE OUTSIDE

BOX STALL DOORS (№ 18) SHOULD BE HEAVY AND STRONG. THE OBJECT IN CONSTRUCTING PANELS AS HERE SHOWN IS TO MAKE SOMETHING THAT IS NOT EAISLY DAMAGED BY A KICKING HORSE AND IS EASILY REPAIRED IF DAMAGED

PLATE XIX

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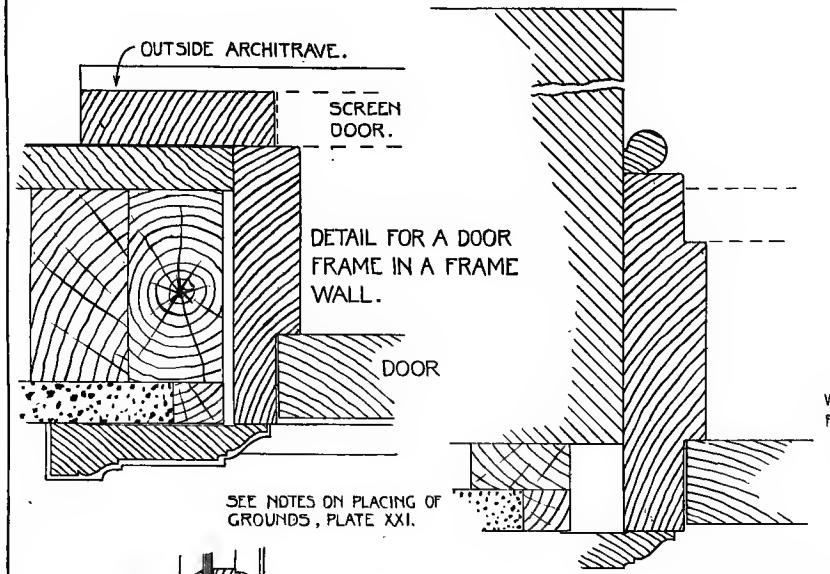
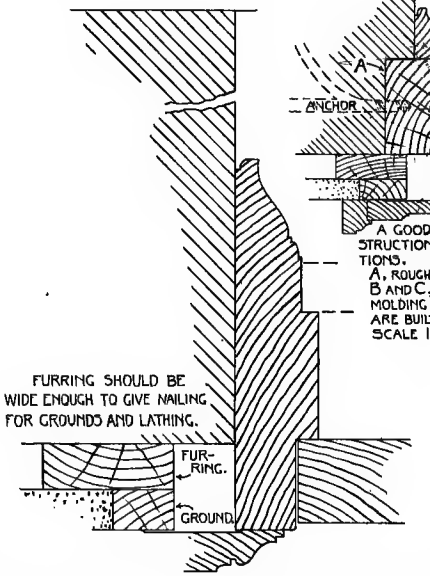
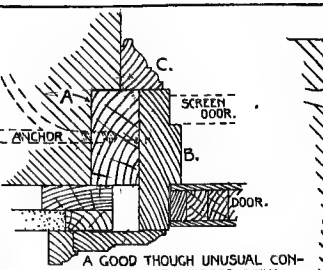


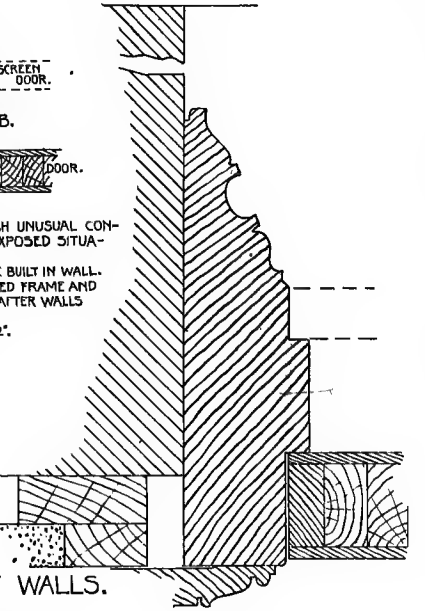
DETAIL FOR A DOOR FRAME IN A FRAME WALL.

SEE NOTES ON PLACING OF GROUNDS, PLATE XXI.





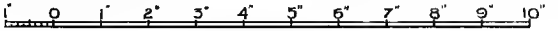
A GOOD THOUGH UNUSUAL CONSTRUCTION FOR EXPOSED SITUATIONS.
A, ROUGH FRAME BUILT IN WALL.
B AND C, FINISHED FRAME AND MOLDING SET IN AFTER WALLS ARE BUILT.
SCALE 1½" TO 12".



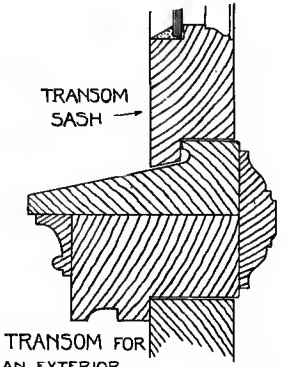
DETAILS FOR EXTERIOR DOOR FRAMES IN MASONRY WALLS.

FRAMES FOR OUTSIDE DOORS SHOULD ALWAYS HAVE REBATES FOR SCREEN DOORS. THOUGH OUTSIDE DOORS ARE REBATED INTO THE FRAMES IN MOST CASES, IT IS ENTIRELY FEASIBLE TO SET THEM WITH STOPS AS SHOWN BY SECTIONS 1 AND 3 FOR INTERIOR DOOR FRAMES: SEE PLATE XXI.

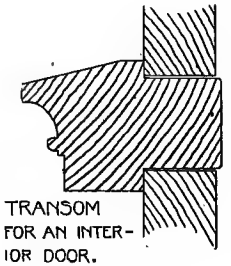
FRAMES SHOULD BE SO CONSTRUCTED THAT THEY CAN BE SET IN PLACE AFTER WALLS ARE BUILT. THEY ARE USUALLY FASTENED BY NAILING TO WOODEN WEDGES DRIVEN INTO MORTAR JOINTS OF MSONRY.



SCALE - 3" TO 12".

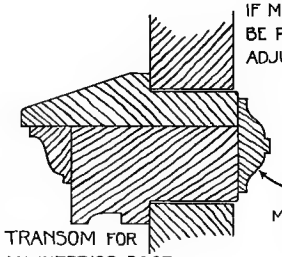


TRANSOM FOR AN EXTERIOR DOOR.

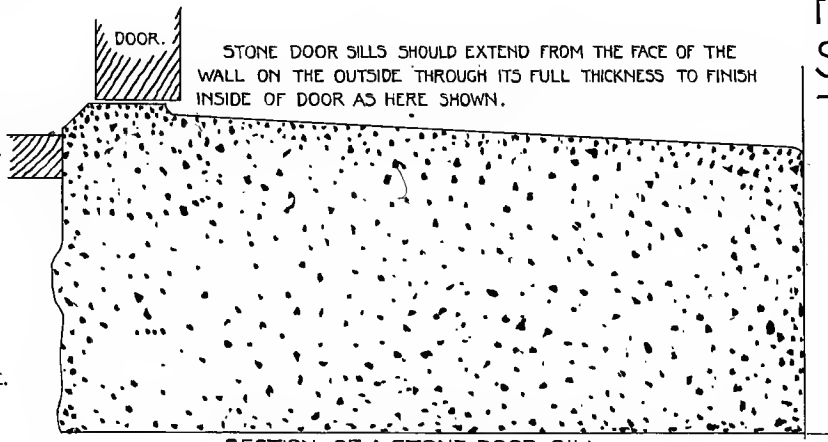


TRANSOM FOR AN INTERIOR DOOR.

TRANSOM SASHES ARE USUALLY HINGED AT BOTTOM TO SWING IN AT TOP, THOUGH THEY ARE SOMETIMES FIXED OR PIVOTED. IF MOVABLE AT ALL THEY SHOULD BE PROVIDED WITH TRANSOM ADJUSTERS.



TRANSOM FOR AN INTERIOR DOOR



STONE DOOR SILLS SHOULD EXTEND FROM THE FACE OF THE WALL ON THE OUTSIDE THROUGH ITS FULL THICKNESS TO FINISH INSIDE OF DOOR AS HERE SHOWN.

SECTION OF A STONE DOOR SILL.

DETAILS OF OUTSIDE DOOR FRAMES, STONE SILL, AND TRANSOMS.

C.A.M. PLATE XX

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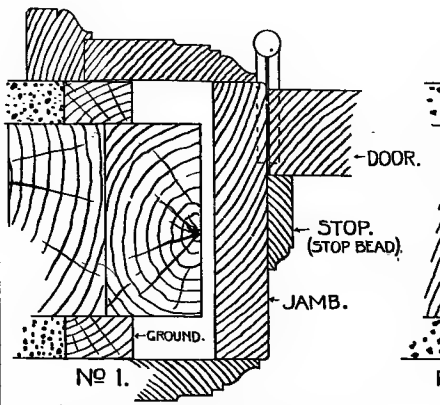
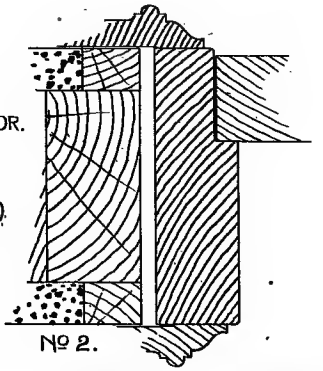


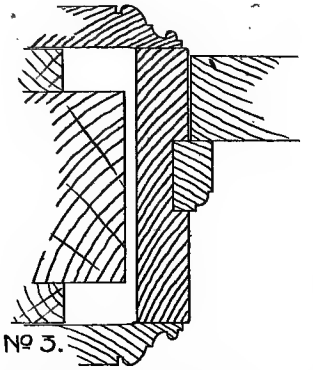
№ 1.

AN ORDINARY FRAME WITH STOP BEAD. IN CHEAP WORK THE FRAME IS USUALLY MADE ⅝" INSTEAD OF 1⅛" THICK.



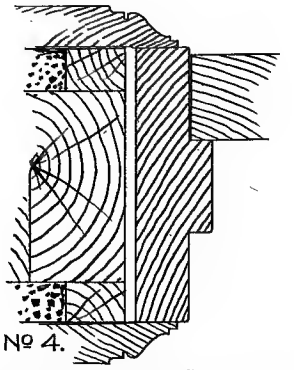
№ 2.

A COMMON REBATED FRAME.



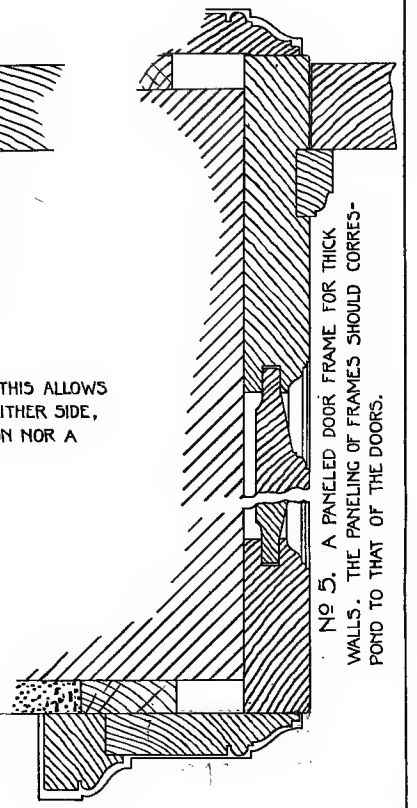
№ 3.

FRAME WITH STOP PLOUGHED IN. THIS FORM OF CONSTRUCTION IS ONE OF THE BEST IN EVERY WAY.

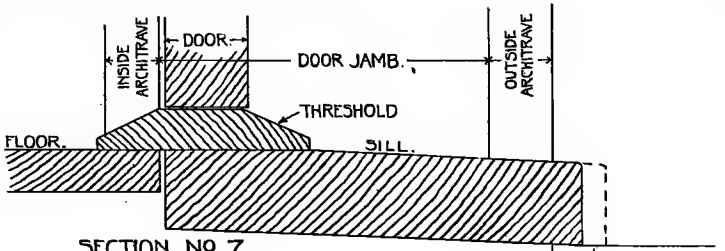


№ 4.

DOUBLE REBATED FRAME. THIS ALLOWS THE DOOR TO BE HUNG ON EITHER SIDE, BUT IT IS NEITHER A COMMON NOR A PLEASING FORM.



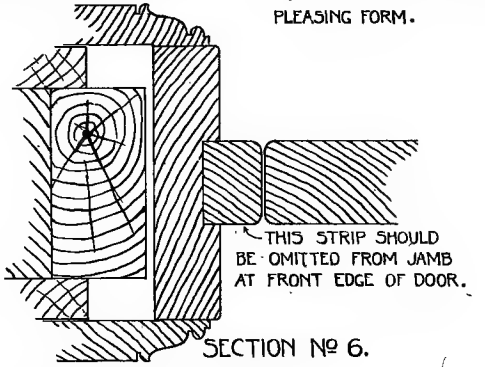
№ 5. A PANELED DOOR FRAME FOR THICK WALLS. THE PANELING OF FRAMES SHOULD CORRESPOND TO THAT OF THE DOORS.



SECTION № 7

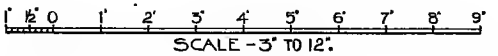
SECTIONS OF SILLS FOR OUTSIDE DOORS IN FRAME HOUSES. SECTION № 7 IS THE MORE COMMON BUT IS NOT SO GOOD AS № 8. THESE SILLS SHOULD BE OF OAK OR SOME OTHER HARD WOOD.

PORCH FLOORS MAY BE ON A LEVEL WITH BOTTOMS OF SILLS OR ONE STEP DOWN, AS INDICATED BY BROKEN LINES.

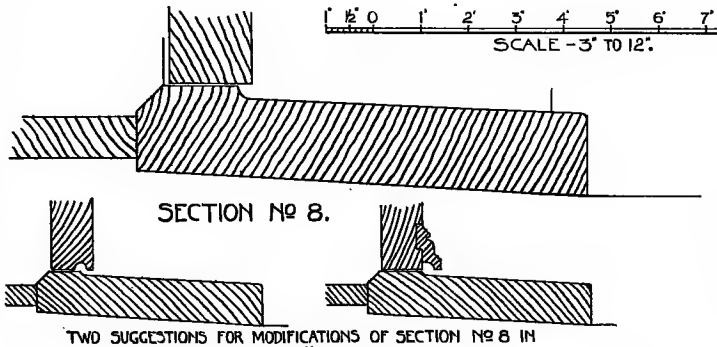


SECTION № 6.

JAMB AT HINGE SIDE OF A DOUBLE ACTING SPRING HINGED DOOR.



SCALE - 3" TO 12".



SECTION № 8.

TWO SUGGESTIONS FOR MODIFICATIONS OF SECTION № 8 IN EXPOSED SITUATIONS. SCALE ½ THAT OF № 8.

DETAILS OF INTERIOR DOOR FRAMES AND WOODEN SILLS.

SECTIONS 3 AND 5 SHOW THE BEST FORMS FOR FRAMES. № 2 IS A VERY COMMON FORM, BUT IS OBJECTIONABLE ON ACCOUNT OF BRINGING THE TOP ARCHITRAVE LOWER ON ONE SIDE OF THE DOOR THAN ON THE OTHER.

THESE DETAILS ARE APPLICABLE TO MASONRY WALLS AS WELL AS TO FRAME WALLS, THE WIDTH OF FRAMES BEING MADE TO SUIT THICKNESS OF WALL.

HINGES (BUTTS) SHOULD ALWAYS BE WIDE ENOUGH TO THROW THE DOOR CLEAR OF PROJECTING ARCHITRAVES, WAINSCOTINGS, ETC., WHEN IT IS OPENED BACK TO THE WALL.

GROUNDS ON STUD PARTITIONS ARE COMMONLY PLACED AS SHOWN ON SECTIONS 2 AND 4 AND ARCHITRAVES ARE NAILED TO THE STUDS THROUGH THE PLASTER; BUT IT IS BETTER, AND ON MASONRY WALLS NECESSARY, TO SET THEM AS IN SECTIONS 1, 3, 5, AND 6 TO GIVE A DIRECT NAILING FOR THE BACK EDGE OF ARCHITRAVE.

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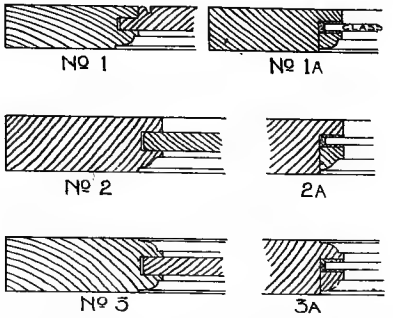
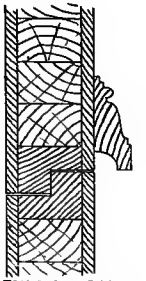
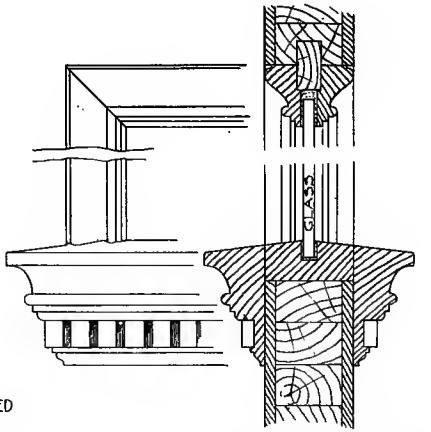
cam. PLATE XXI

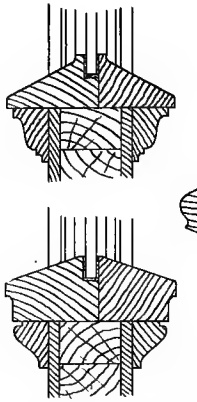


SECTIONS 1 TO 3A ARE DETAILS FOR SMALL DOORS SUCH AS ARE USED FOR KITCHEN AND PANTRY DRESSERS. WIDTHS OF STILES, RAILS, ETC., WILL VARY WITH THE DESIGN AND SIZE OF DOOR.

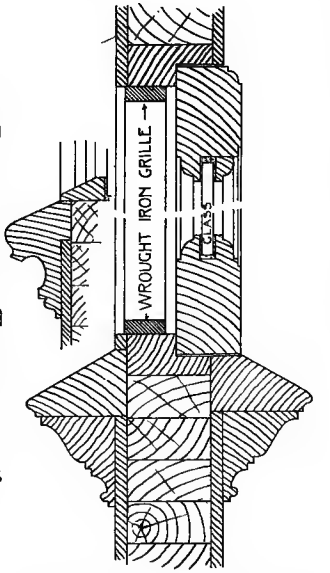


DETAILS OF JOINT BETWEEN UPPER AND LOWER PARTS OF A "DUTCH" DOOR. DRIP MOLDING MAY BE OMITTED IF DOOR IS SHELTERED BY A PORCH ROOF.

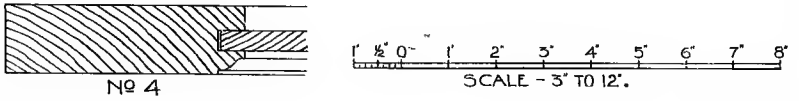


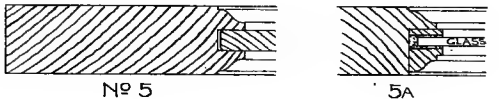


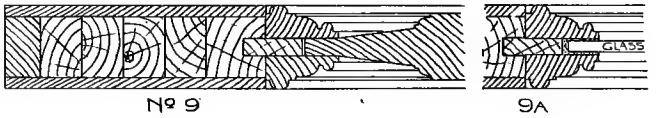
DETAILS OF MOLDINGS AT BOTTOMS OF GLASS PANELS IN DOORS. THESE ARE OFTEN OMITTED AND THE PANEL MOLDING CONTINUED ACROSS AT BOTTOM OF GLASS THE SAME AS AT TOP AND SIDES.

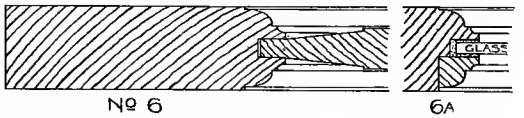


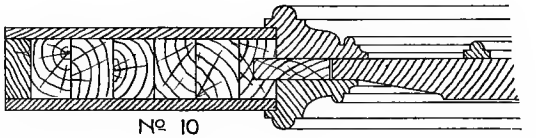
DOOR WITH GRILLE AND GLASS. THE GLASS IS SET IN A HINGED FRAME SO THAT IT CAN BE OPENED FOR CLEANING THE OUTSIDE.

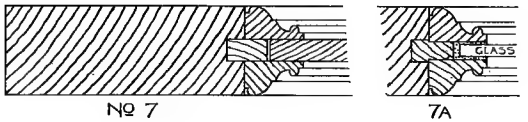


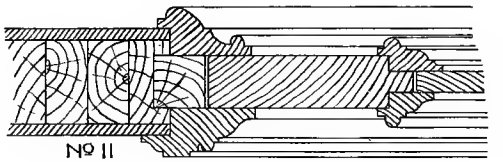


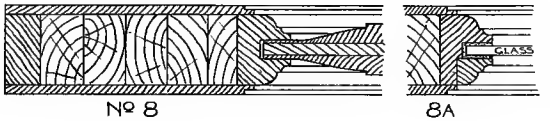












SECTIONS 4 TO 7A ARE FOR COMMON SOLID DOORS, WHILE SECTIONS 8 TO 11 ARE FOR MORE EXPENSIVE VENEERED DOORS.

SECTIONS 10 AND 11 EACH SHOW TWO STYLES OF FINISH, ONE SIDE DIFFERING FROM THE OTHER. THIS IS UNUSUAL, BUT THE DIFFERENCE IN TREATMENT OF TWO ROOMS MAY SOMETIMES REQUIRE IT

DETAILS OF DOORS

CHEAP AND MEDIUM GRADE DOORS ARE USUALLY MADE FROM SOLID STOCK, BUT THE BETTER GRADES SHOULD BE VENEERED ON A BUILT UP CORE OF WHITE PINE.

PANELS ARE USUALLY SOLID, BUT IF VERY LARGE, OR IF THE TWO SIDES ARE REQUIRED TO SHOW DIFFERENT KINDS OF WOOD, THEY SHOULD BE BUILT UP IN "THREE PLY" AS INDICATED IN SECTION Nº 8.

WIDTHS OF STILES, ETC., VARY IN COMMON PRACTICE.

SEPARATE MOLDINGS SET WITH FIXED TONGUE ON STILES AND RAILS, LEAVING PANELS FREE TO MOVE, AS SHOWN IN SECTIONS 7, 9, 10, & 11, ARE MUCH BETTER THAN MOLDINGS RUN SOLID. MOLDINGS SHOULD NEVER BE FASTENED DIRECTLY TO PANELS.

C.A.M.

PLATE XXII

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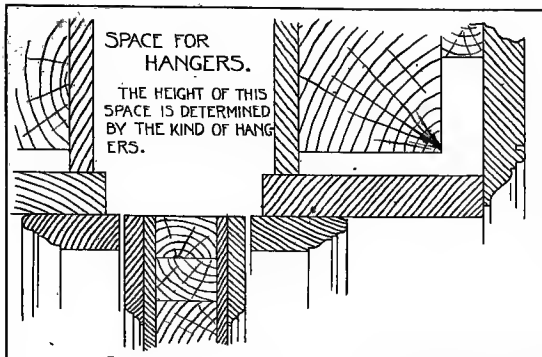
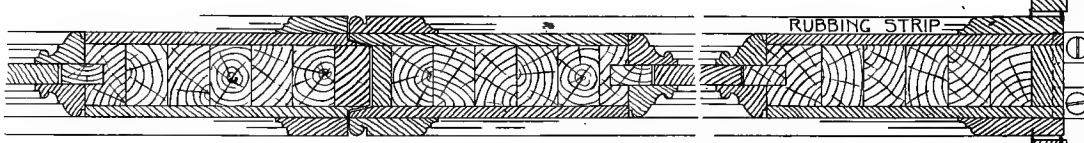


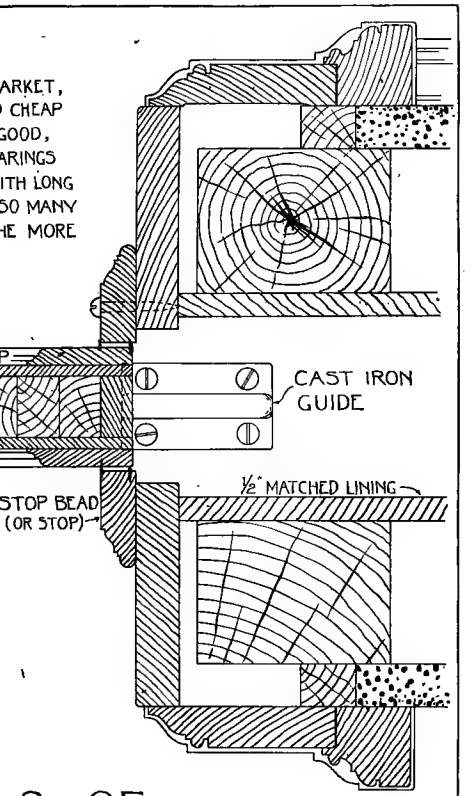
SECTION A.

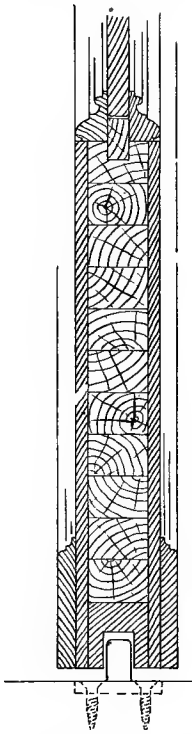
NOTES ON HANGERS.

AS THERE ARE NOW A NUMBER OF EXCELLENT SLIDING DOOR HANGERS ON THE MARKET, IT SEEMED BEST NOT TO SHOW ANY PARTICULAR ONE HERE. FOR SIMPLE AND CHEAP HANGERS ORDINARY GROOVED SHEAVES RUNNING ON A SINGLE STEEL TRACK ARE GOOD, BUT FOR A GOOD GRADE OF WORK THOSE OVERHEAD HANGERS WITH ROLLER BEARINGS AND ADJUSTABLE TUBULAR TRACKS ARE RECOMMENDED. TRACKLESS HANGERS WITH LONG ARMS AND LAZY TONGS MOVEMENT ARE OFTEN USED, BUT THERE ARE USUALLY SO MANY PARTS TO GET OUT OF ORDER THAT THEY ARE SELDOM AS SATISFACTORY AS THE MORE SIMPLE OVERHEAD HANGERS.



DETAIL SECTION B.

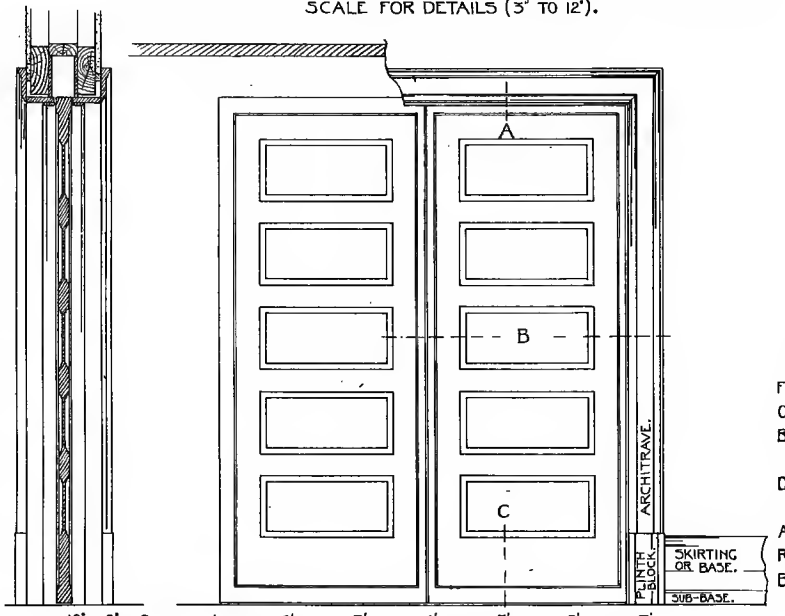




SECTION C.

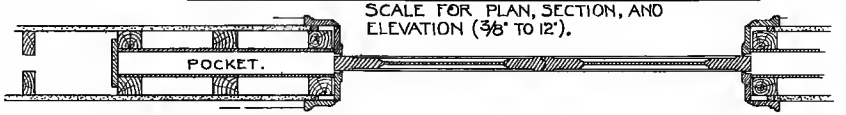
0 ½ 1 2 3 4 5 6 7 8 9 10 11 12

SCALE FOR DETAILS (3" TO 12").



12" 6" 0 1 2 3 4 5 6 7

SCALE FOR PLAN, SECTION, AND ELEVATION (3/8" TO 12").



DETAILS OF SLIDING DOORS.

FRAME PARTITIONS FOR ORDINARY SLIDING DOORS VARY FROM 10" TO 13" IN THICKNESS, DEPENDING UPON THE THICKNESS OF THE DOORS AND SIZE OF STUDS. 2" STUDS ARE OFTEN USED, BUT 3" STUDS MAKE A MUCH STIFFER CONSTRUCTION.

POCKETS SHOULD ALWAYS BE LINED AS A PROTECTION FROM DIRT CAUSED BY FALLING BITS OF PLASTER.

SMALL MOLDED **RUBBING STRIPS** SHOULD ALWAYS BE PUT ALL AROUND THE MARGINS OF SLIDING DOORS SO THAT STILES, RAILS, AND MOLDINGS WILL WORK FREE OF STOPS AND NOT BE MARRED BY ANY SLIGHT WARPING OF DOORS.

@am.

PLATE XXIII

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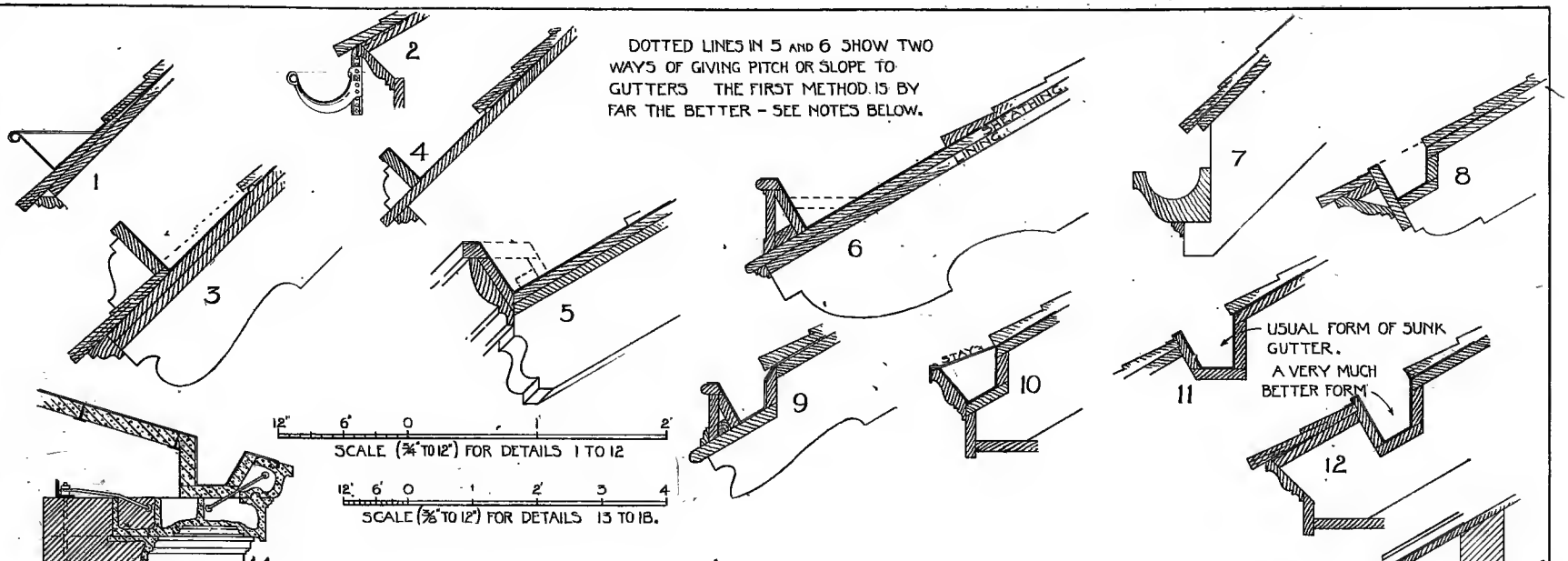
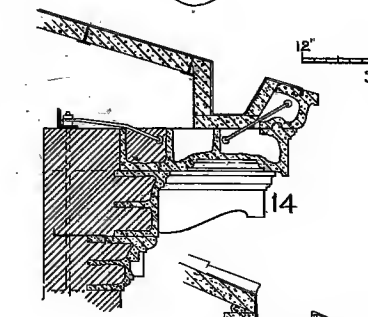
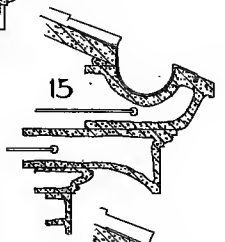
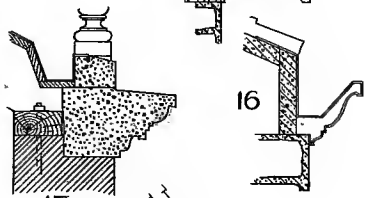
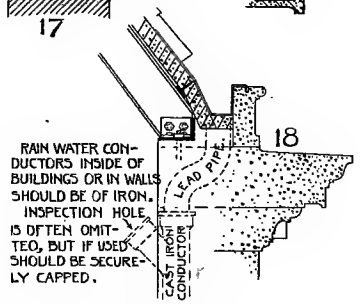









18
LEAD PIPE
CAST IRON CONDUCTOR
RAIN WATER CONDUCTORS INSIDE OF BUILDINGS OR IN WALLS SHOULD BE OF IRON.
INSPECTION HOLE IS OFTEN OMITTED, BUT IF USED SHOULD BE SECURELY CAPPED.

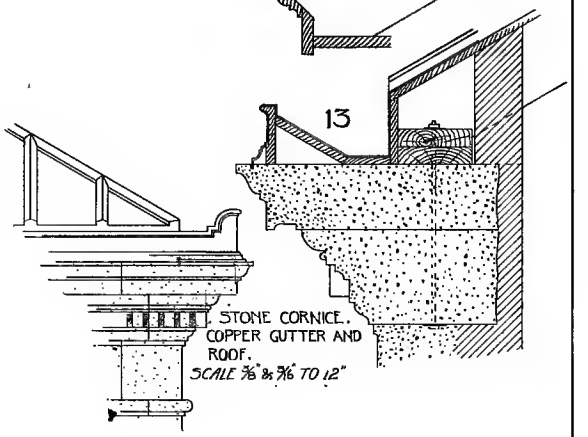
NOTES ON GUTTERS AND CONDUCTORS

GUTTERS ARE USUALLY MADE OF OR LINED WITH TIN, GALVANIZED IRON, OR COPPER; TIN BEING THE CHEAPEST, WHILE COPPER IS THE BEST AND MOST EXPENSIVE. SHEET LEAD IS SOMETIMES USED AND IS EXCELLENT FOR LINING GUTTERS IN STONE OR TERRA COTTA CORNICES, WHILE TIN OR GALVANIZED IRON SHOULD NOT BE USED FOR THIS CLASS OF WORK. IN LINING GUTTERS FOR SHINGLE, TILE, OR SLATE ROOFS, GREAT CARE SHOULD BE TAKEN TO EXTEND THE LINING WELL UP UNDER SHINGLES, TILES, OR SLATES, THAT THERE MAY BE NO LEAKAGE FROM WATER BACKING UP ON ACCOUNT OF GUTTERS FILLING WITH SNOW AND ICE

THE SIZE AND PITCH OR SLOPE OF GUTTERS MAY BOTH BE MUCH LESS THAN COMMONLY SUPPOSED. THE WRITER HAS FOR SEVERAL YEARS LIVED UNDER A ROOF WHERE AN AREA OF 50'x70' IS SATISFACTORILY DRAINED BY A GUTTER THAT AT ITS DEEPEST POINT IS 4½" DEEP, 8½" WIDE AT THE TOP, AND 3" WIDE AT THE BOTTOM. THE WATER IS ALL TAKEN OFF AT TWO SIDES OF THE BUILDING, ONE BRANCH OF THE GUTTER BEING 68' LONG TO THE CONDUCTOR AND TURNING FOUR RIGHT ANGLES IN THAT LENGTH. THE FALL IS 3½" IN 68' AND THE WATER FROM THE WHOLE AREA OF 50'x70' IS EASILY CARRIED AWAY BY ONE 4" ROUND CONDUCTOR. AN ACCURATE AND UNIFORM FALL OF .2" IN 50' IS AMPLE TO INSURE A GOOD FLOW OF WATER; AND IF BOTTOMS OF GUTTERS ARE V SHAPED RATHER THAN FLAT OR ROUND, THE FLOW IS ACCELERATED, THUS TENDING TO KEEP GUTTERS CLEAN. THE PITCH OR FALL IS USUALLY OBTAINED BY A FALSE BOTTOM HAVING A UNIFORM RISE FROM THE OUTLET; BUT IN CHEAP HANGING OR STANDING GUTTERS THE GUTTER IS ITSELF SET ON A SLOPE, MUCH TO THE DETRIMENT OF THE DESIGN FROM THE ARTISTIC POINT OF VIEW

SOME ARCHITECTS DESIGN LARGE GUTTERS TO PREVENT CLOGGING WITH SNOW AND ICE; BUT THE ADVANTAGE IS DOUBTFUL. AS A LARGE GUTTER CLOGS ALMOST AS QUICKLY AS A SMALL ONE AND THAWS OUT MUCH MORE SLOWLY.

CONDUCTORS OR "DOWN SPOUTS" OUTSIDE OF BUILDINGS SHOULD BE OF TIN, GALVANIZED IRON, OR COPPER, AND TO PREVENT BURSTING FROM FREEZING SHOULD BE RECTANGULAR OR OCTAGONAL RATHER THAN ROUND IN SECTION. SEE ALSO NOTE WITH SECTION 18.



DETAILS OF GUTTERS

FOR WOOD, STONE, AND TERRA COTTA CORNICES

MATERIAL INDEX.

WOOD. BRICK STONE. TERRA COTTA

PLATE XXIV

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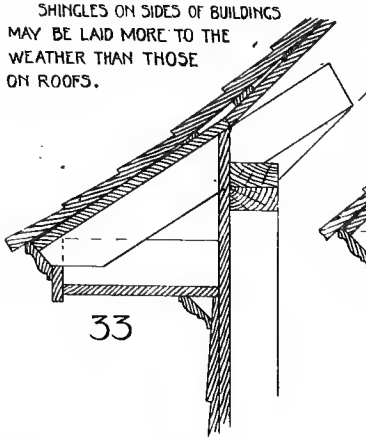
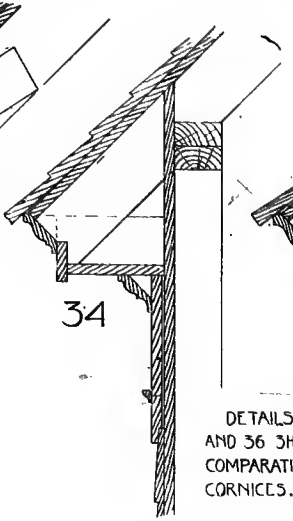
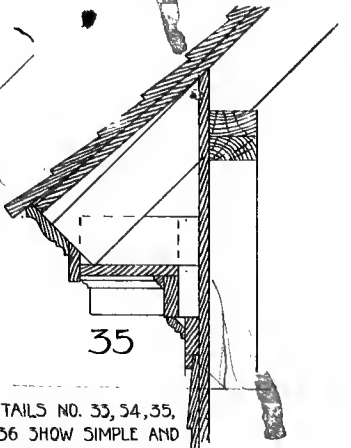
WOODEN SHINGLES ARE USUALLY 16", 18", OR 20" LONG, ABOUT 1/16" THICK AT POINTS AND FROM 1/4" TO 1/2" THICK AT BUTTS, ACCORDING TO MAKE AND QUALITY. HAND MADE SHINGLES ARE BEST AND MAY BE MADE TO SPECIAL SIZES IF DESIRED, BUT THEY ARE VERY EXPENSIVE.

SHINGLES ON ROOFS SHOULD SHOW LESS THAN 1/3 THE LENGTH OF THE SHINGLE TO THE WEATHER, SAY 4 1/2" FOR 16", 5 1/2" FOR 18", AND 6" FOR 20" SHINGLES. EAVES SHOULD BE STARTED WITH THREE THICKNESSES, ONE COURSE POINTS AND TWO COURSES FULL SHINGLES, THUS:

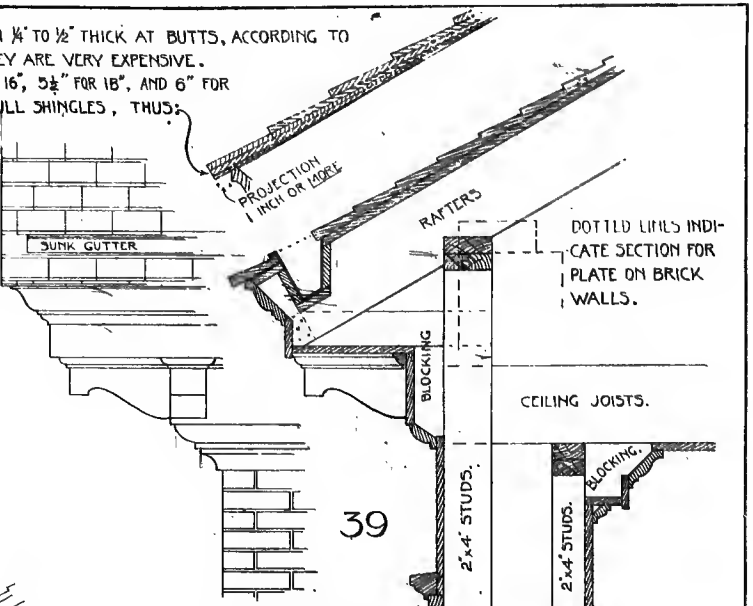
SHINGLES ON SIDES OF BUILDINGS MAY BE LAID MORE TO THE WEATHER THAN THOSE ON ROOFS.



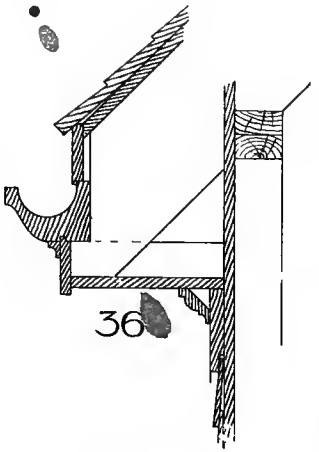


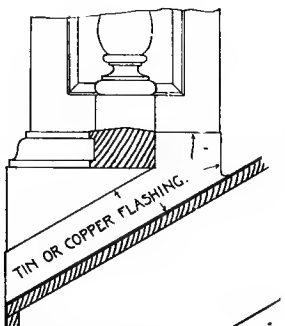


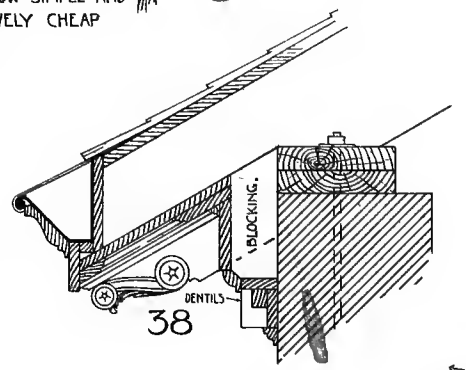
DETAILS NO. 33, 34, 35, AND 36 SHOW SIMPLE AND COMPARATIVELY CHEAP CORNICES.

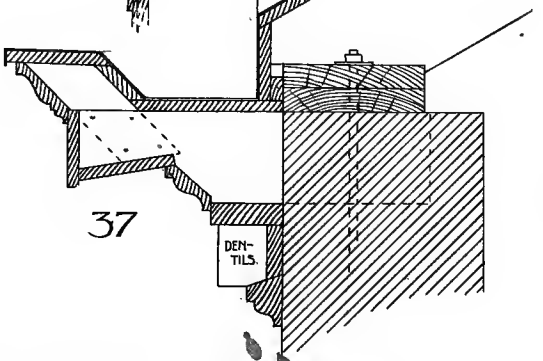


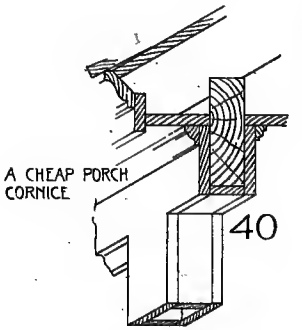
CORNICE FOR A BRICK BUILDING IN THE COLONIAL STYLE. THE SECTION SHOWS CORNICE FOR A LARGE TWO STORY PALLADIAN PORCH. SCALE 1/2" TO 12".

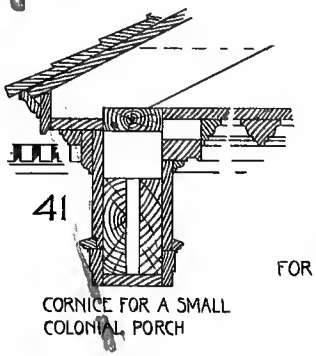












CORNICE FOR A SMALL COLONIAL PORCH

12" 6" 0 1' 2'

SCALE (3/4" TO 12"), EXCEPT FOR DETAIL Nº 39.

DETAILS OF BOX CORNICES

ADAPTABLE, WITH SLIGHT MODIFICATIONS, TO EITHER WOODEN OR MASONRY BUILDINGS.

FOR GUTTER DETAILS SEE PLATES XXIV AND XXVII.

c.a.m

PLATE XXV

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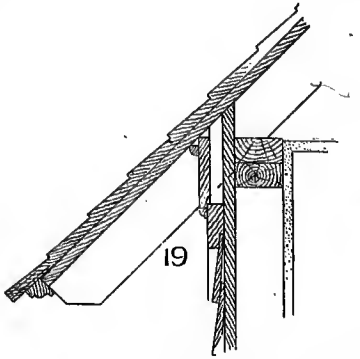
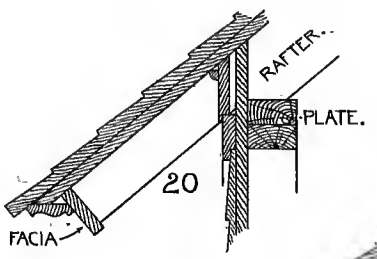
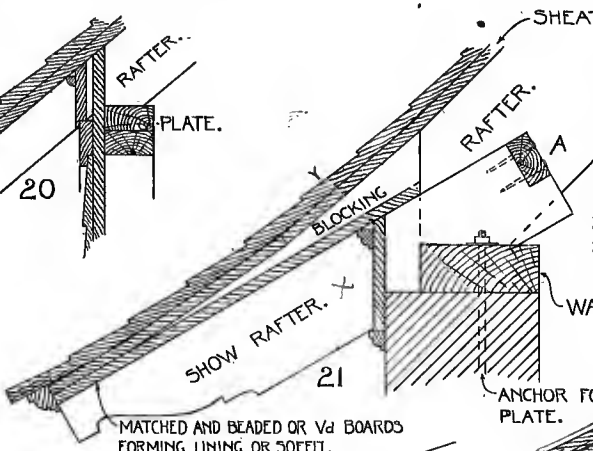
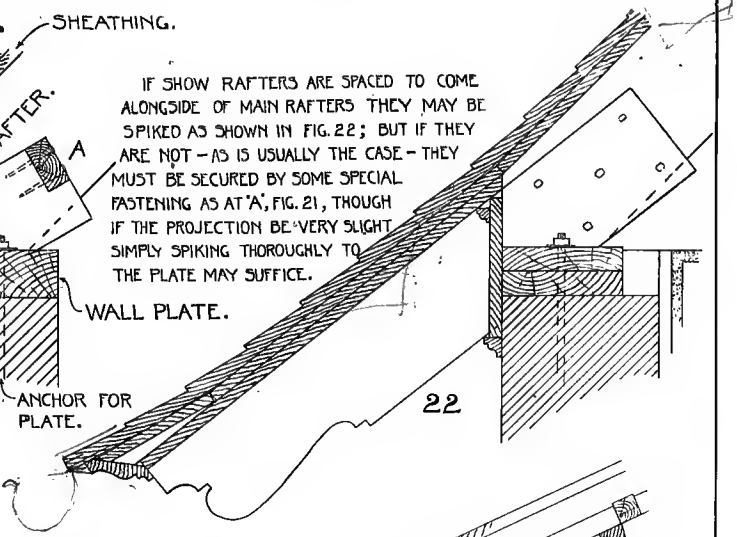


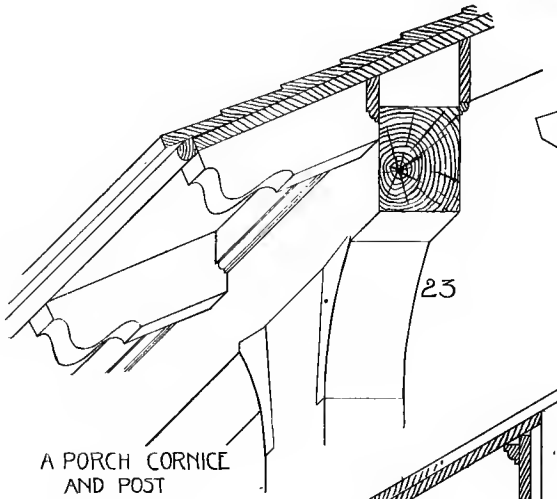


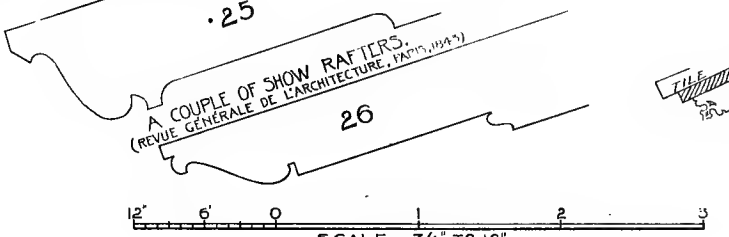
FIGURES 19 AND 20 SHOW TWO SIMPLE CORNICES SUITABLE FOR ONLY THE CHEAPEST WORK

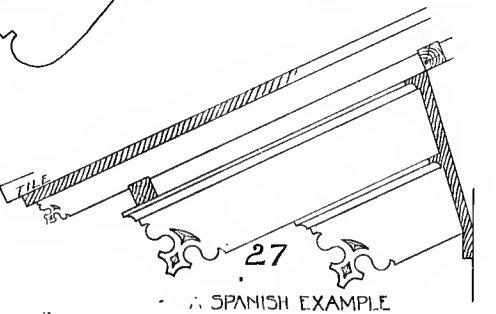


IF SHOW RAFTERS ARE SPACED TO COME ALONGSIDE OF MAIN RAFTERS THEY MAY BE SPIKED AS SHOWN IN FIG. 22; BUT IF THEY ARE NOT – AS IS USUALLY THE CASE – THEY MUST BE SECURED BY SOME SPECIAL FASTENING AS AT 'A', FIG. 21, THOUGH IF THE PROJECTION BE VERY SLIGHT SIMPLY SPIKING THOROUGHLY TO THE PLATE MAY SUFFICE.

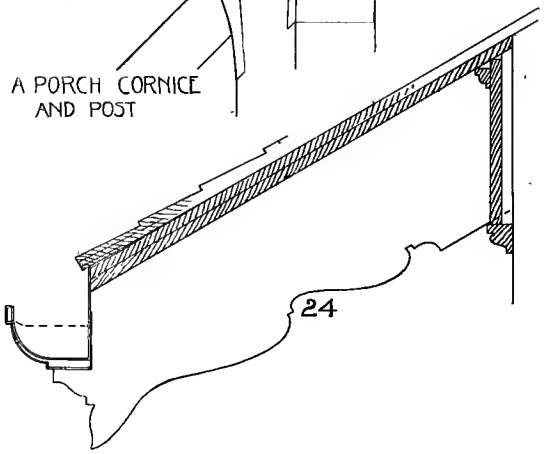








SCALE = 3/4" TO 12"
(FIGURES 25, 26, AND 27 ARE NOT DRAWN TO SCALE)



NOTES

THIS TYPE OF CORNICE IS CAPABLE OF GREAT VARIATION IN TREATMENT, FROM THE PLAINEST AND CHEAPEST TO THE MOST ELABORATE AND COSTLY WORK. THOUGH THE DETAILS HERE GIVEN SHOW SHINGLE ROOFS, TILE, SLATE, OR SHEET METAL MAY BE USED AS WELL. FOR RAIN WATER GUTTERS SEE PLATES XXIV AND XXVII

IN CHEAP WORK THE "SHOW RAFTERS" ARE SIMPLY THE MAIN ROOF RAFTERS EXTENDED; BUT IN GOOD WORK THEY ARE OF BETTER MATERIAL, OFTEN SAWED TO PATTERN, AND MAY BE SET AT A DIFFERENT ANGLE FROM THE MAIN RAFTERS TO GIVE A SLIGHT CURVE OR BELL SHAPE TO THE ROOF AT THE EAVES THIS CURVE SHOULD NOT BE TOO NOTICEABLE, HOWEVER, AS IT THEN DEFEATS ITS OWN END BY BECOMING A VULGARITY RATHER THAN A REFINEMENT IN DESIGN. FOR THE SAME REASON IT IS BETTER TO KEEP THE SOFFIT STRAIGHT, AS IN FIGS. 21 AND 22, RATHER THAN TO CURVE EITHER SOFFIT OR SHOW RAFTERS, THE CURVE FOR ROOF BEING GIVEN IN THE UPPER SHEATHING AS SHOWN. THE EXTRA LINING OR SHEATHING OVER THE SHOW RAFTERS NOT ONLY ALLOWS THIS TO BE DONE; BUT ALSO PREVENTS ROOFING NAILS FROM BEING DRIVEN THROUGH AND SHOWING ON THE UNDER SIDE

THE DESIGNS HERE SHOWN MAY, WITH SLIGHT MODIFICATIONS, BE USED FOR EITHER FRAME OR MASONRY BUILDINGS.

DETAILS OF OPEN TIMBER CORNICES.

SEE ALSO PLATES XXIV AND XXVII.

C.A.M.

PLATE XXVI

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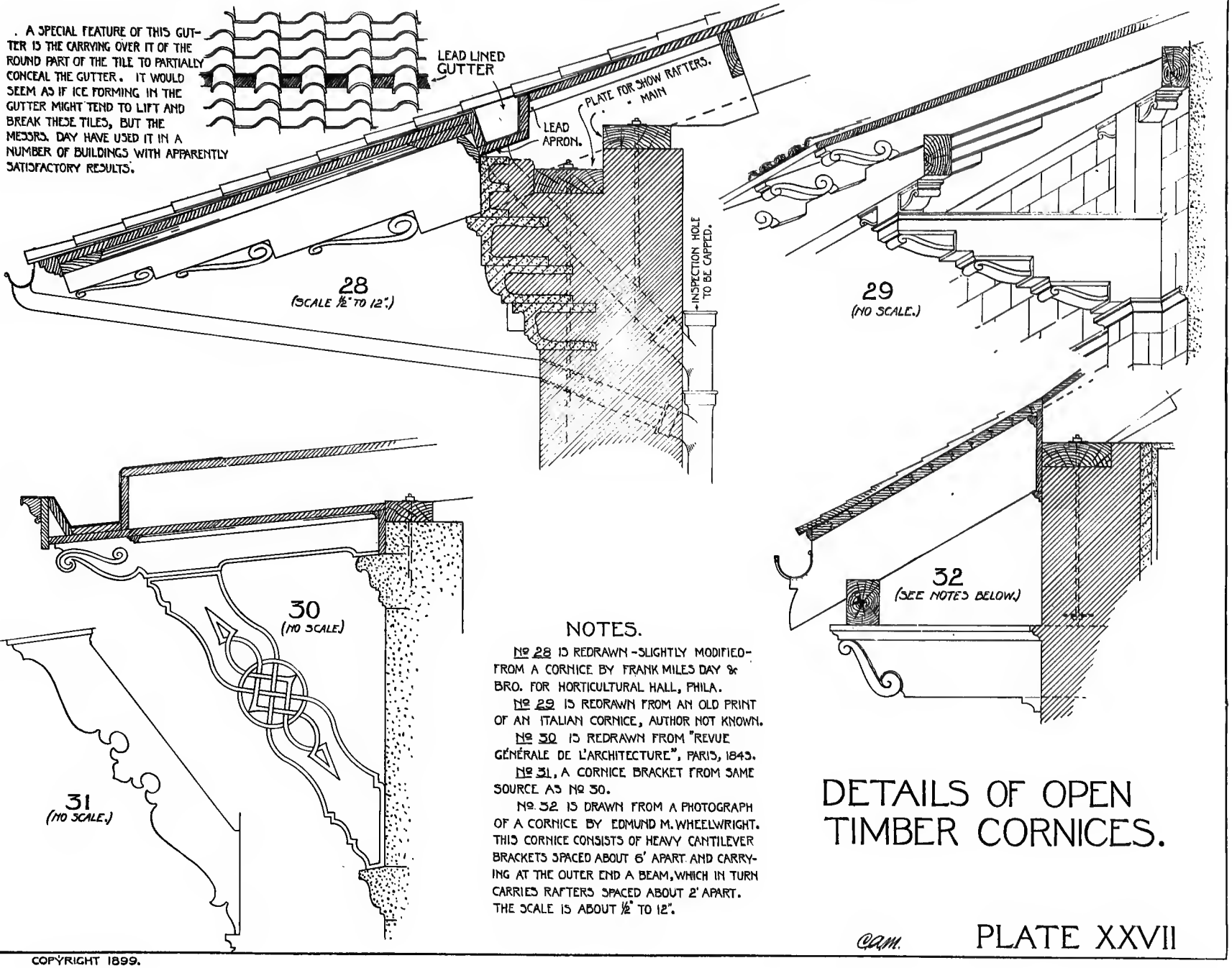
. A SPECIAL FEATURE OF THIS GUTTER IS THE CARRYING OVER IT OF THE ROUND PART OF THE TILE TO PARTIALLY CONCEAL THE GUTTER. IT WOULD SEEM AS IF ICE FORMING IN THE GUTTER MIGHT TEND TO LIFT AND BREAK THESE TILES, BUT THE MESSRS. DAY HAVE USED IT IN A NUMBER OF BUILDINGS WITH APPARENTLY SATISFACTORY RESULTS.
LEAD LINED GUTTER
LEAD APRON.
PLATE FOR SHOW RAFTERS.
MAIN
INSPECTION HOLE TO BE CAPPED.
28
(SCALE ½" TO 12".)
29
(NO SCALE.)
30
(NO SCALE.)
31
(NO SCALE.)
32
(SEE NOTES BELOW.)

NOTES.

№ 28 IS REDRAWN - SLIGHTLY MODIFIED - FROM A CORNICE BY FRANK MILES DAY & BRO. FOR HORTICULTURAL HALL, PHILA.

№ 29 IS REDRAWN FROM AN OLD PRINT OF AN ITALIAN CORNICE, AUTHOR NOT KNOWN.

№ 30 IS REDRAWN FROM "REVUE GÉNÉRALE DE L'ARCHITECTURE", PARIS, 1845.

№ 31, A CORNICE BRACKET FROM SAME SOURCE AS № 30.

№ 32 IS DRAWN FROM A PHOTOGRAPH OF A CORNICE BY EDMUND M. WHEELWRIGHT. THIS CORNICE CONSISTS OF HEAVY CANTILEVER BRACKETS SPACED ABOUT 6' APART AND CARRYING AT THE OUTER END A BEAM, WHICH IN TURN CARRIES RAFTERS SPACED ABOUT 2' APART. THE SCALE IS ABOUT ½" TO 12".

DETAILS OF OPEN TIMBER CORNICES.

@a.m. PLATE XXVII

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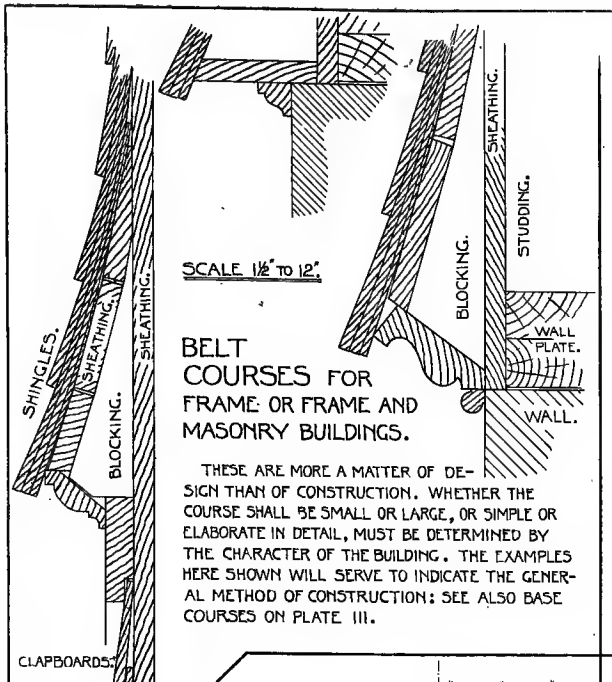


BELT COURSES FOR FRAME OR FRAME AND MASONRY BUILDINGS.

THESE ARE MORE A MATTER OF DESIGN THAN OF CONSTRUCTION. WHETHER THE COURSE SHALL BE SMALL OR LARGE, OR SIMPLE OR ELABORATE IN DETAIL, MUST BE DETERMINED BY THE CHARACTER OF THE BUILDING. THE EXAMPLES HERE SHOWN WILL SERVE TO INDICATE THE GENERAL METHOD OF CONSTRUCTION: SEE ALSO BASE COURSES ON PLATE III.

HALF TIMBER CONSTRUCTION.

USUALLY IN EUROPE THE TIMBER FORMS THE REAL CONSTRUCTION, FILLED IN AND BACKED UP WITH BRICK WHICH IS COMMONLY. PLASTERED ON THE OUTSIDE FLUSH WITH THE TIMBERS. IN THIS COUNTRY THE TIMBERS ARE NOT STRUCTURAL; ARE USED FOR EFFECT ONLY, AND ARE USUALLY MADE TO PROJECT FROM ⅛" TO 1" FROM THE FACE OF PLASTER.

SHAM HALF TIMBER WORK.

TIMBERS MAY BE 1", 1¼", 1½", OR 2" THICK, 4" TO 12" WIDE, AND ARE USUALLY LEFT ROUGH. WOODEN LATHING IS SOMETIMES USED BUT EXPANDED METAL OR WOVEN WIRE IS MUCH BETTER. "PLASTER BOARD" IS GOOD AND FINISHES WITH ONE COAT OF PLASTER. ALL LATHING REQUIRES FURRING TO GIVE CLINCH FOR PLASTER: WOOD FURRINGS FOR WOODEN LATH; AND WOOD, ¼" ROUND IRON, OR SMALL V SHAPED IRON FOR METAL LATH. SHEATHING SHOULD ALWAYS BE COVERED WITH GOOD BUILDING PAPER BEFORE LATHING. PLASTER IS OFTEN FINISHED AS ROUGH CAST OR PEBBLE DASH.

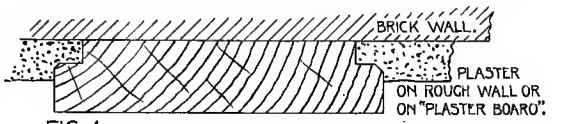


FIG. 1.

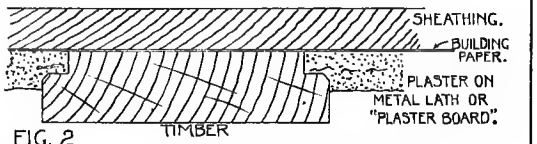


FIG. 2

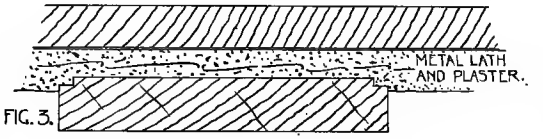


FIG. 3.

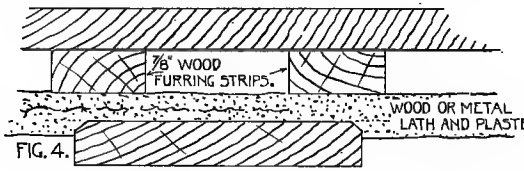
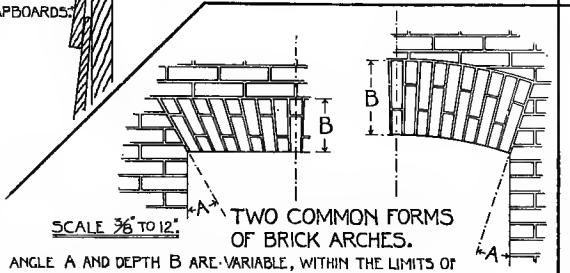


FIG. 4.

FIGS. 3 AND 4 SHOW TIMBERS PUT ON OVER LATH AND FIRST COAT OF PLASTER.

SCALE 3" TO 12".

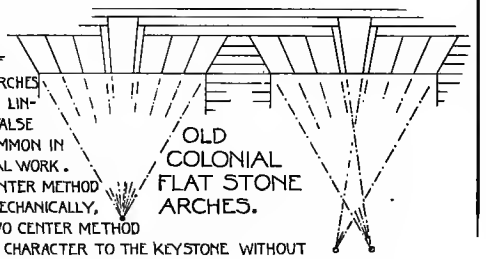
FURRING STRIPS MUST BE SPACED FOR NAILING BOTH LATHING AND TIMBERS.



TWO COMMON FORMS OF BRICK ARCHES.

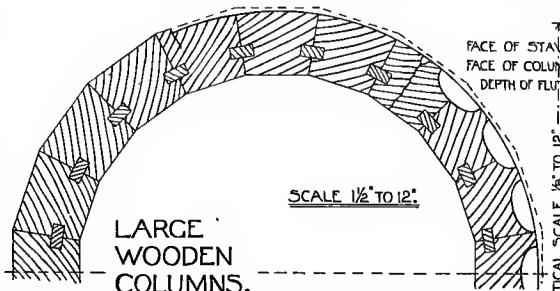
ANGLE A AND DEPTH B ARE VARIABLE, WITHIN THE LIMITS OF THE MATERIAL, AT THE OPTION OF THE DESIGNER

SOME BRICK-MAKERS MAKE BRICKS OF SPECIAL SHAPES AND SIZES FOR ARCHES, BUT MOST OF THEM DO NOT; THEREFORE IT IS USUALLY BEST TO DESIGN BRICK ARCHES SO THAT THEY CAN BE BUILT OF BRICKS GROUND TO SHAPE FROM STOCK SIZES. FLAT ARCHES SHOULD HAVE THE SOFFIT CAMBERED ABOUT 1/16" OR 3/32" FOR EACH FOOT OF SPAN.

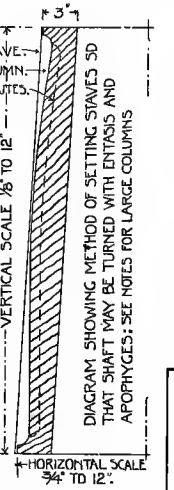


TWO METHODS OF JOINTING ARCHES (FREQUENTLY LINTELS WITH FALSE JOINTS) COMMON IN OLD COLONIAL WORK. THE ONE CENTER METHOD IS BETTER MECHANICALLY, BUT THE TWO CENTER METHOD GIVES MORE CHARACTER TO THE KEYSTONE WITHOUT INCREASING THE ANGLE AT THE SKEW BACK.

OLD COLONIAL FLAT STONE ARCHES.



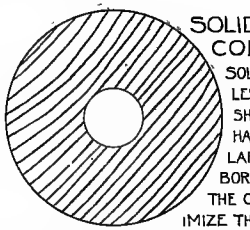
LARGE WOODEN COLUMNS.


3"
FACE OF STAVE.
FACE OF COLUMN.
DEPTH OF FLUTES.
VERTICAL SCALE ⅛" TO 12"
DIAGRAM SHOWING METHOD OF SETTING STAVES SO THAT SHAFT MAY BE TURNED WITH ENTASIS AND APOPHYGES: SEE NOTES FOR LARGE COLUMNS
HORIZONTAL SCALE ¾" TO 12".

COLUMNS 12" OR MORE IN DIAMETER SHOULD BE STAVED UP AS HERE SHOWN. 2", 2½", OR 3" POPLAR OR WHITE PINE PLANKS ARE USED AND THEY SHOULD BE THOROUGHLY KILN DRIED AND GLUED AND SPLINED UP IN THE BEST POSSIBLE MANNER. THE ROUGH SHAFT SHOULD BE TAPERED AS SHOWN BY EXAGGERATED DIAGRAM AT THE RIGHT, IN ORDER THAT THE WOOD MAY NOT BE TURNED TOO THIN AT THE TOP IN GIVING ENTASIS TO THE COLUMN AND THAT THE APOPHYGES AT TOP AND BOTTOM MAY BE PROPERLY TURNED ON THE SHAFT.

IN FLUTED COLUMNS IT IS NOT NECESSARY TO PLACE JOINTS WITH REFERENCE TO FLUTES, AS THEY SHOULD BE SO WELL MADE AS TO BE PERFECTLY TIGHT WHEREVER THEY MAY COME. THE FLUTES MUST NOT BE TOO DEEP OR THEY WILL CUT TOO NEARLY THROUGH THE WOOD AT TOP AND BASE OF SHAFT. IN THE DETAIL ABOVE THE WOOD IS SHOWN AT ITS THICKEST POINT, BUT AT THE BASE THE TAPER OF SHAFT AND INCLINATION OF STAVES BRING THE FLUTES IN VERY NEARLY TO THE SPLINES IN THE JOINTS. BUILT UP COLUMNS MAY BE MADE OF ALMOST ANY SIZE, BUT THEIR MAKING SHOULD BE ENTRUSTED ONLY TO THOSE WHO HAVE SPECIAL FACILITIES FOR DOING THE WORK PROPERLY.

THE DETAIL ABOVE SHOWS A COLUMN 22" IN DIAMETER STAVED UP IN 20 PIECES. A 12" COLUMN WOULD REQUIRE ONLY 8 STAVES.



SOLID TURNED COLUMNS.

SOLID COLUMNS UNLESS VERY SMALL SHOULD ALWAYS HAVE A 2" (OR LARGER) HOLE BORED THROUGH THE CENTER TO MINIMIZE THE TENDENCY TO CHECK. THE PRACTICAL LIMIT OF DIAMETER FOR SOLID TURNED SHAFTS IS BETWEEN 10 AND 12 INCHES, AS UNLESS CUT FROM TIMBER ENTIRELY OUTSIDE THE HEART OF THE LOG, THEY WILL CHECK BADLY IN SPITE OF ALL PRECAUTIONS.

MISCELLANEOUS EXTERIOR DETAILS.

PLATE XXVIII

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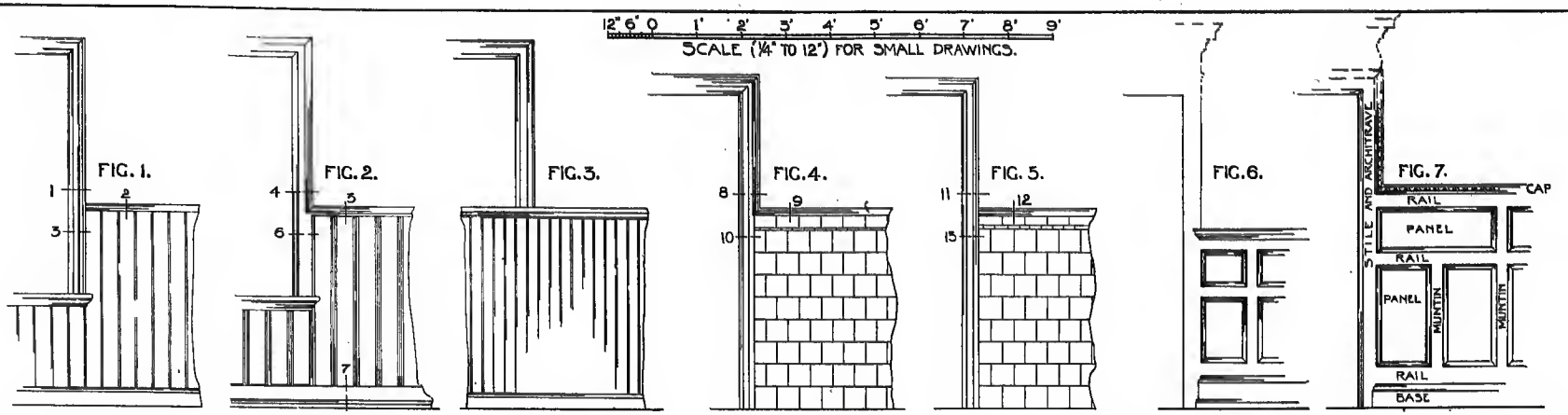


FIG. 1 SHOWS WAINSCOT CAP STOPPING AGAINST ARCHITRAVE.

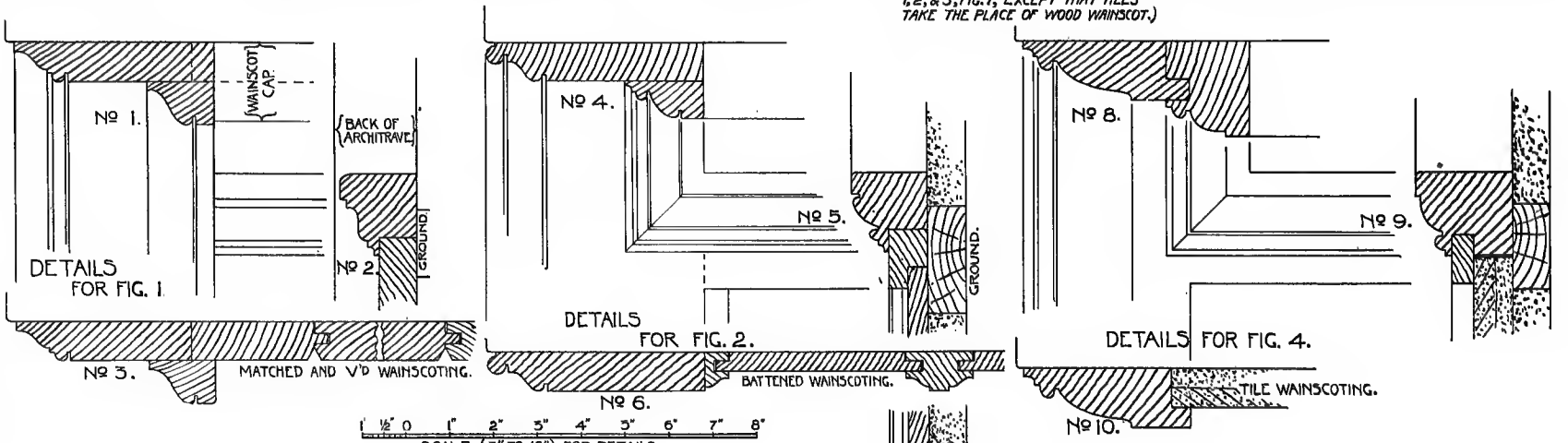
FIG. 2 SHOWS WAINSCOT CAP MITRED AND CARRIED UP OVER ARCHITRAVE AS A BACK MOLDING.

FIG. 3 SHOWS WAINSCOT CAP CONTINUOUS WITH STOOL OF WINDOW.

FIG. 4 SHOWS TILE WAINSCOT WITH WOODEN CAP TREATED AS IN FIG. 2.

FIG. 5 SHOWS TILE WAINSCOT WITH EITHER WOOD OR TILE CAP STOPPING AGAINST ARCHITRAVE. *(DETAILS 11, 12, & 13 ARE THE SAME AS 1, 2, & 3, FIG. 1, EXCEPT THAT TILES TAKE THE PLACE OF WOOD WAINSCOT.)*

FIGS. 6 AND 7 SHOW TWO PANELED WAINSCOTS. FIG. 6 SHOWS CAP RETURNED ON ITSELF, AND FIG. 7 SHOWS CAP CARRIED OVER ARCHITRAVE AS IN FIG. 2.

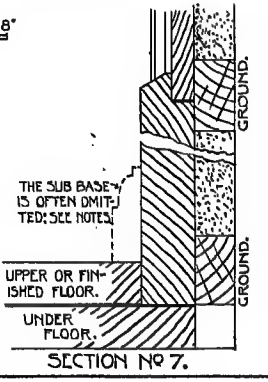


NOTES.

AS A MATTER OF DESIGN WAINSCOTING MAY BE USED IN ALMOST ANY PART OF A HOUSE, BUT FOR SANITARY AND OTHER PRACTICAL REASONS IT SHOULD ALWAYS BE USED IN KITCHENS, LAUNDRIES, BATH ROOMS, ETC. WHERE WATER IS TO BE USED TILE IS MUCH BETTER THOUGH MORE EXPENSIVE THAN WOOD FOR BOTH WAINSCOTING AND FLOORS.

THE HEIGHT OF WAINSCOTING IS NOT DETERMINED BY ANY FIXED RULES OR PRACTCE. IT MAY BE VERY LOW OR IT MAY COVER THE ENTIRE WALL FROM FLOOR TO CEILING, THOUGH FROM 3 TO 5 FEET IN HEIGHT WOULD PROBABLY BE CONSIDERED REASONABLE LIMITS FOR ORDINARY WORK. THE WAINSCOT BASE MAY BE A FULL SKIRTING WITH SUB BASE OR IT MAY BE REDUCED TO A SMALL SINGLE MEMBER LITTLE MORE THAN A SUB BASE IN ITSELF.

PROVIDE PLENTY OF GROUNDS FOR NAILING AND SEE THAT THE FIRST COAT OF PLASTER IS CARRIED CLEAR TO FLOOR BEHIND ALL WAINSCOTING OR OTHER FINISH TO MAKE EXTERIOR WALLS WARM AND DRY AND TO RENDER PARTITIONS MORE NEARLY SOUND PROOF.



SECTION № 7.

WAINSCOTING AND ARCHITRAVES.

SEE ALSO PLATE XXX.

cam

PLATE XXIX

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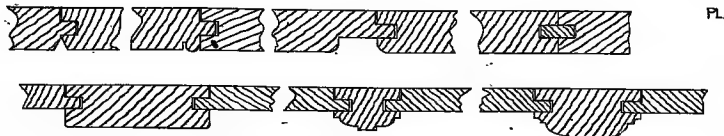
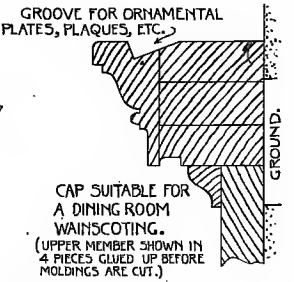


EXAMPLES OF TONGUED AND GROOVED WAINSCOTING.

SIMPLE MATCHED AND V'D OR BEADED BOARDS (FIRST TWO EXAMPLES) FROM 3 TO 4 INCHES WIDE ARE CHEAPEST; ½" BOARDS WITH THICKER GROOVED PIECES HAVING THE EFFECT OF BATTENS (LAST 3 EXAMPLES) ARE NEXT IN COST; AND THE PANELED WORK IS THE MOST EXPENSIVE AND BY FAR THE BEST BOTH FOR DESIGN AND CONSTRUCTION.

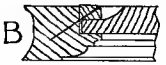


CAP SUITABLE FOR A DINING ROOM WAINSCOTING. (UPPER MEMBER SHOWN IN 4 PIECES GLUED UP BEFORE MOLDINGS ARE CUT.)

PANELING.

SEE ALSO DOOR DETAILS, PLATE XXII.

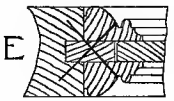
A — ORDINARY CONSTRUCTION, MOLDINGS RUN SOLID ON FRAME WORK OF PANELING.



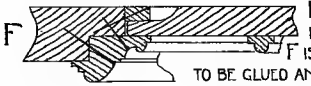
B — MOLDINGS RUN ON FRAME WORK BUT PANELS SET IN FROM BACK AFTER BEING FINISHED. WITH THIS CONSTRUCTION SHRINKAGE OF PANELS DOES NOT AFFECT STRENGTH OR APPEARANCE OF THE WORK.

C — A WRONG BUT VERY COMMON CONSTRUCTION.. MOLDING IS NAILED TO PANEL AND SHRINKAGE OF PANEL DISTORTS OR SPLITS WORK AND OPENS JOINTS.

D — THE SAME FORM OR DESIGN AS C BUT WITH MUCH BETTER CONSTRUCTION. MOLDING SHOULD BE GLUED TO FRAME AND PANELS SET IN FROM BACK AS AT B.

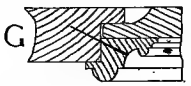


E — THE BEST CONSTRUCTION FOR MOLDED PANEL WORK THAT IS TO SHOW ON BOTH SIDES, AS FOR DOORS, ETC. SEE DOOR DETAILS, PLATE XXII.

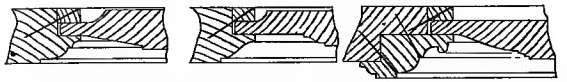


F AND G SHOW TWO CONSTRUCTIONS FOR PANELS WITH RAISED MOLDINGS. F IS THE BETTER AS IT ALLOWS MOLDING TO BE GLUED AND MORE FIRMLY FASTENED TO FRAME AND AT THE SAME TIME LEAVES THE PANEL FREE AS IN B. IF MOLDING IN G IS FASTENED AS SHOWN IT IS LIKELY TO WARP AWAY FROM PANEL, AND IF FASTENED TO PANEL IT IS AS BAD AS EXAMPLE C.

F



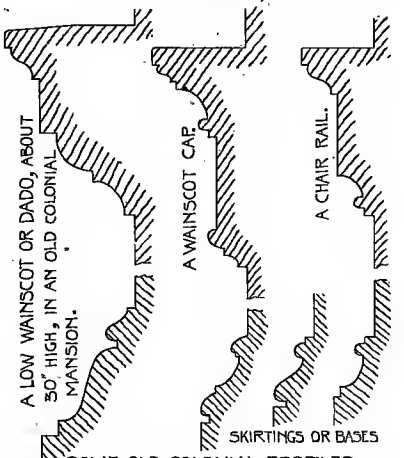
G



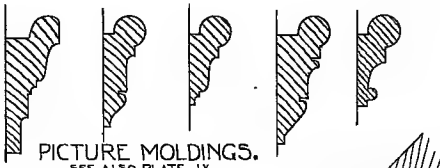
H

PANELS THEMSELVES MAY BE PERFECTLY PLAIN OR THEY MAY BE RAISED, MOLDED, CARVED, OR OTHERWISE ORNAMENTALLY TREATED. THE MOLDINGS AROUND MAY BE CARVED IF THE QUALITY OF WORK IS GOOD ENOUGH, BUT NONE OF THE EXAMPLES SHOWN ABOVE IS HEAVY ENOUGH FOR SUCCESSFUL CARVING EXCEPT FOR VERY MINUTE WORK.

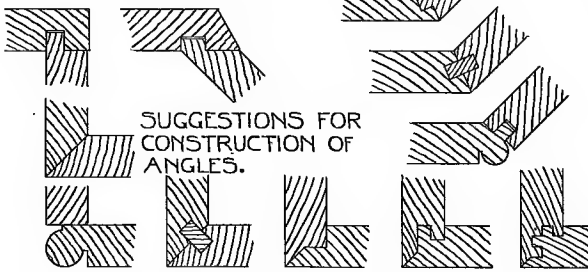
LARGE PANELS SHOULD BE OF VENEER CONSTRUCTION IN 3 THICKNESSES, AS 12" IS ABOUT THE LIMIT OF WIDTH FOR SATISFACTORY WORK WITH SOLID PANELS.



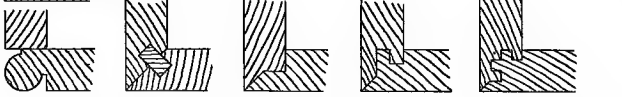
SOME OLD COLONIAL PROFILES.

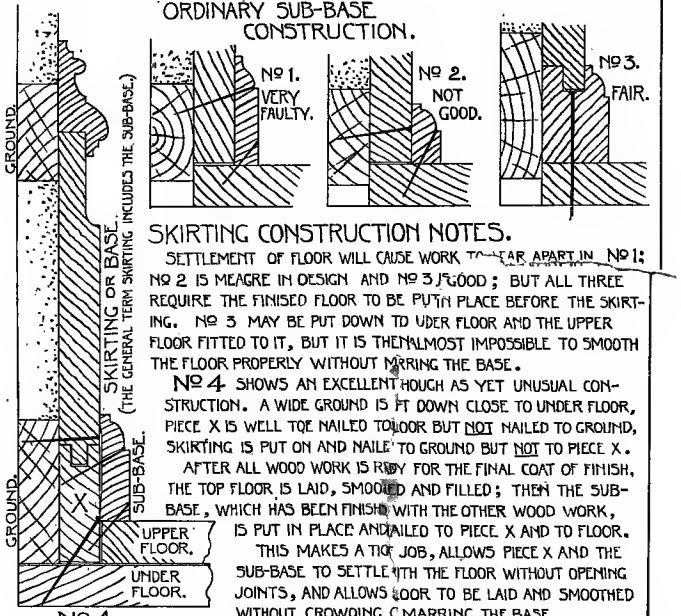


PICTURE MOLDINGS.
SEE ALSO PLATE IX.



SUGGESTIONS FOR CONSTRUCTION OF ANGLES.





SKIRTING CONSTRUCTION NOTES.

SETTLEMENT OF FLOOR WILL CAUSE WORK TO TEAR APART IN № 1; № 2 IS MEAGRE IN DESIGN AND № 3 IS GOOD; BUT ALL THREE REQUIRE THE FINISED FLOOR TO BE PUT IN PLACE BEFORE THE SKIRTING. № 3 MAY BE PUT DOWN TO UDER FLOOR AND THE UPPER FLOOR FITTED TO IT, BUT IT IS THEN ALMOST IMPOSSIBLE TO SMOOTH THE FLOOR PROPERLY WITHOUT MARRING THE BASE.

№ 4 SHOWS AN EXCELLENT HOUGH AS YET UNUSUAL CONSTRUCTION. A WIDE GROUND IS PT DOWN CLOSE TO UNDER FLOOR, PIECE X IS WELL TOE NAILED TO FLOOR BUT NOT NAILED TO GROUND, SKIRTING IS PUT ON AND NAILED TO GROUND BUT NOT TO PIECE X. AFTER ALL WOOD WORK IS READY FOR THE FINAL COAT OF FINISH, THE TOP FLOOR IS LAID, SMOOTHED AND FILLED; THEN THE SUB-BASE, WHICH HAS BEEN FINISHED WITH THE OTHER WOOD WORK, IS PUT IN PLACE AND NAILED TO PIECE X AND TO FLOOR. THIS MAKES A TIGHT JOB, ALLOWS PIECE X AND THE SUB-BASE TO SETTLE WITH THE FLOOR WITHOUT OPENING JOINTS, AND ALLOWS FLOOR TO BE LAID AND SMOOTHED WITHOUT CROWDING OR MARRING THE BASE.

(SEE ALSO PLATE III.)

PLINTH BLOCKS, ARCHITRAVES, ETC.

ARCHITRAVES FOR DOORS MAY REST ON PLINTH BLOCKS (SEE PLATE XXIII) TO AVOID CARRYING FINE MOLDINGS TO THE FLOOR AND TO GIVE ADDITIONAL THICKNESS AGAINST WHICH TO STOP SKIRTING. AS ARCHITRAVES, WAINSCOTINGS, CHAIR RAILS, AND SKIRTINGS MEET IN CONSTRUCTION, EACH ONE SHOULD BE DESIGNED WITH REFERENCE TO THE OTHERS THAT THEY MAY JOIN PROPERLY.

CORNICES, FALSE BEAMS, ETC.

THIS WORK IS OFTEN DONE IN PLASTER AND DECORATED; BUT IF OF WOOD, IT IS BEST FIRST TO DRAW THE SECTION IN PROFILE, THEN TO DRAW THE CONSTRUCTION, USING ⅞" BOARDS AS FAR AS POSIBLE. BOARDS 1⅛", 1⅜", AND 1¾" THICK MAY BE USED IF IT IS MORE DIFFICULT TO GET THE THICKER LUMBER WELL SEASONED.

IN ALL GOOD INTERIOR WORK BOARDS MAY BE SPLINED, GLUED UP, AND MOLDED (WORKED TO ALMOST ANY DESIRED FORM.

GENERAL INTERIOR FINISH.

SEE ALSO PLATE XXIX.

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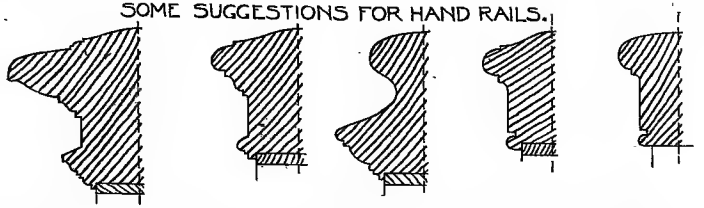
PLATE XXX

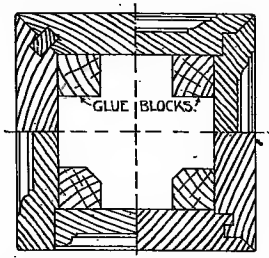
STAIR DETAILS.

SOME SUGGESTIONS FOR HAND RAILS.



HAND RAILS. THE SUBJECT OF HAND RAILING IS TOO COMPLEX FOR FULL DISCUSSION HERE, BUT THE HEIGHT FROM TOP OF STEP – ON LINE WITH FACE OF RISER – TO TOP OF RAIL SHOULD NOT BE LESS THAN 2' 5" NOR MORE THAN 2' 8"; 2' 6" IS PERHAPS BEST. THE HEIGHT OF RAIL ON LANDINGS AND AROUND WELLS SHOULD BE FROM 2'8" TO 3'0". WALL RAILS – HAND RAILS CARRIED ON WALL BRACKETS – SHOULD BE USED FOR STAIRS ENCLOSED BETWEEN WALLS.

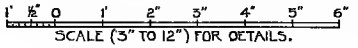
BALUSTERS. BALUSTERS MAY BE TURNED OR SQUARE, SIMPLE OR ELABORATE, AND FROM ⅞" TO 1¾" IN DIAMETER FOR ORDINARY WORK, BUT LARGER FOR MONUMENTAL WORK. THE SPACING IS OPTIONAL, BUT IN SOME OF THE BEST OF THE OLD COLONIAL STAIRCASES BALUSTERS ARE SPACED THREE TO A TREAD OF 10", 11", OR 12" RUN.



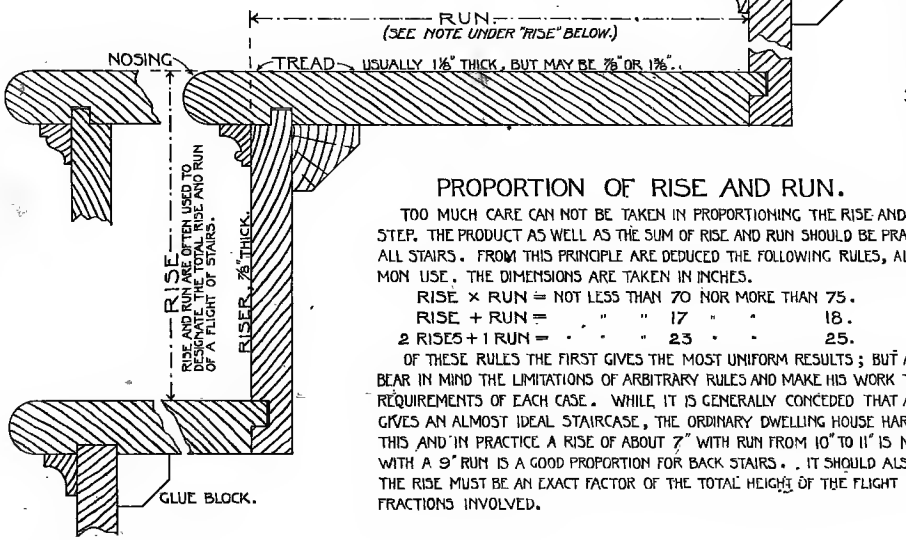
NEWELS, IN CONSTRUCTION, MAY BE SOLID OR BUILT UP; IN FORM, SQUARE, MANY SIDED, OR TURNED; IN DESIGN, PLAIN OR ELABORATE. THE HAND RAIL STARTING IN A SPIRAL WITH BALUSTERS FOLLOWING IT IS OFTEN USED IN PLACE OF A STARTING NEWEL AND IS VERY EFFECTIVE, THOUGH MORE EXPENSIVE THAN A SIMPLE NEWEL.

SECTION OF NEWEL SHOWING DIFFERENT METHODS OF CONSTRUCTING ANGLES. *SEE ALSO PLATE XXX.*

SCALE (3/8" TO 12") FOR SMALL DRAWINGS.



SCALE (3" TO 12") FOR DETAILS.


RUN.
(SEE NOTE UNDER "RISE" BELOW.)
NOSING
TREAD. USUALLY 1⅛" THICK, BUT MAY BE ⅞" OR 1⅜".
RISE
RISE AND RUN ARE OFTEN USED TO DESIGNATE THE TOTAL RISE AND RUN OF A FLIGHT OF STAIRS.
RISER, ⅞" THICK.
GLUE BLOCK.

PROPORTION OF RISE AND RUN.

TOO MUCH CARE CAN NOT BE TAKEN IN PROPORTIONING THE RISE AND RUN TO MAKE AN EASY STEP. THE PRODUCT AS WELL AS THE SUM OF RISE AND RUN SHOULD BE PRACTICALLY CONSTANT FOR ALL STAIRS. FROM THIS PRINCIPLE ARE DEDUCED THE FOLLOWING RULES, ALL OF WHICH ARE IN COMMON USE. THE DIMENSIONS ARE TAKEN IN INCHES.

RISE × RUN =	NOT LESS THAN	70 NOR MORE THAN 75.
RISE + RUN =	" "	17 " " 18.
2 RISES + 1 RUN =	" "	23 " " 25.

OF THESE RULES THE FIRST GIVES THE MOST UNIFORM RESULTS; BUT A DESIGNER SHOULD ALWAYS BEAR IN MIND THE LIMITATIONS OF ARBITRARY RULES AND MAKE HIS WORK TO MEET THE PARTICULAR REQUIREMENTS OF EACH CASE. WHILE IT IS GENERALLY CONCEDED THAT A 6" RISE WITH A 12" RUN GIVES AN ALMOST IDEAL STAIRCASE, THE ORDINARY DWELLING HOUSE HARDLY AFFORDS ROOM FOR THIS AND IN PRACTICE A RISE OF ABOUT 7" WITH RUN FROM 10" TO 11" IS MORE COMMON. AN 8" RISE WITH A 9" RUN IS A GOOD PROPORTION FOR BACK STAIRS. IT SHOULD ALSO BE BORNE IN MIND THAT THE RISE MUST BE AN EXACT FACTOR OF THE TOTAL HEIGHT OF THE FLIGHT HOWEVER SMALL THE FRACTIONS INVOLVED.

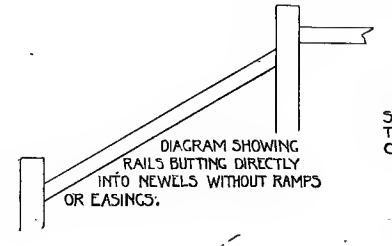
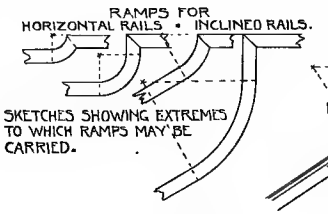
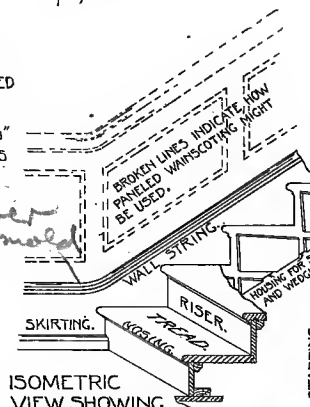


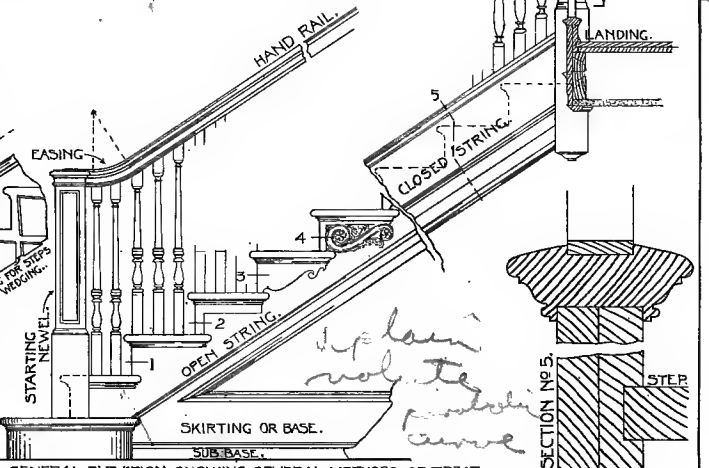
DIAGRAM SHOWING RAILS BUTTING DIRECTLY INTO NEWELS WITHOUT RAMPS OR EASINGS.



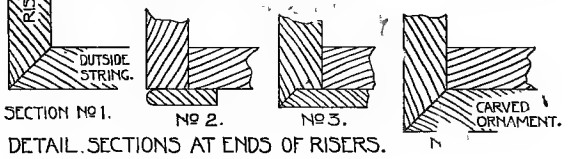
SKETCHES SHOWING EXTREMES TO WHICH RAMPS MAY BE CARRIED.



ISOMETRIC VIEW SHOWING WALL STRING, ETC.

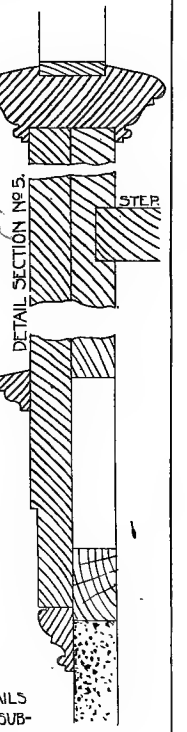


GENERAL ELEVATION SHOWING SEVERAL METHODS OF TREATMENT. THE ENDS OF STEPS AND ALL OTHER ORNAMENTED CONSTRUCTION ADMIT OF GREAT VARIETY IN DESIGN QUITE IMPOSSIBLE EVEN TO INDICATE HERE.



SECTION №1. №2. №3.

DETAIL SECTIONS AT ENDS OF RISERS.



DETAIL SECTION №5.

NOTE: – ONLY A FEW OF THE PRINCIPAL DETAILS OF STAIR BUILDING ARE GIVEN HERE, AS THE SUBJECT IS TOO BROAD TO ADMIT OF ANYTHING LIKE A COMPREHENSIVE TREATMENT IN A WORK OF THIS KIND.

PLATE XXXI

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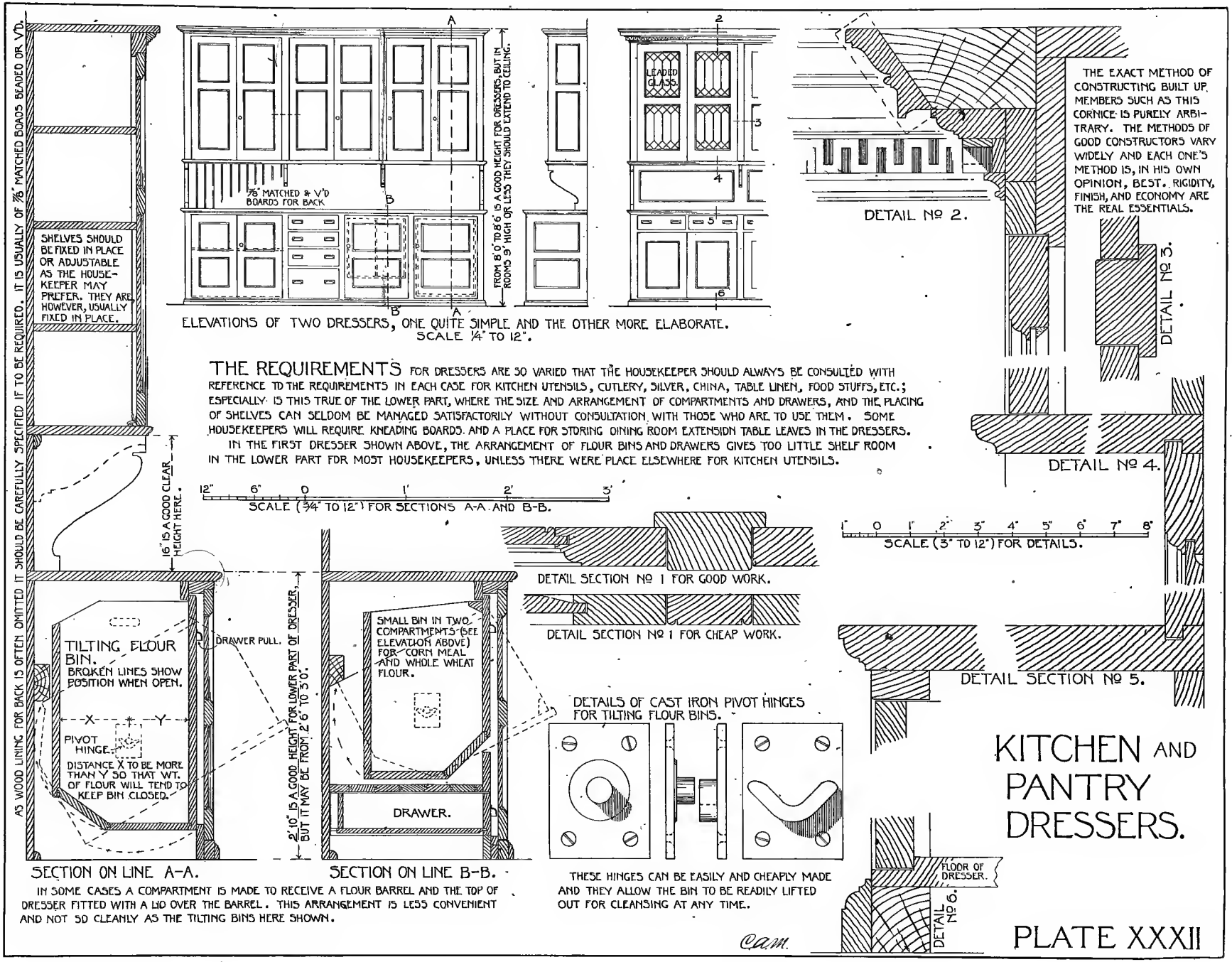
AS WOOD LINING FOR BACK IS OFTEN OMITTED IT SHOULD BE CAREFULLY SPECIFIED IF TO BE REQUIRED. IT IS USUALLY OF ⅞" MATCHED BOARDS BEADED OR V'D.
SHELVES SHOULD BE FIXED IN PLACE OR ADJUSTABLE AS THE HOUSEKEEPER MAY PREFER. THEY ARE, HOWEVER, USUALLY FIXED IN PLACE.
⅞" MATCHED & V'D BOARDS FOR BACK
FROM 8'0" TO 8'6" IS A GOOD HEIGHT FOR DRESSERS, BUT IN ROOMS 9' HIGH OR LESS THEY SHOULD EXTEND TO CEILING.
LEADED GLASS
ELEVATIONS OF TWO DRESSERS, ONE QUITE SIMPLE AND THE OTHER MORE ELABORATE.
SCALE ¼" TO 12".
DETAIL Nº 2.
THE EXACT METHOD OF CONSTRUCTING BUILT UP MEMBERS SUCH AS THIS CORNICE IS PURELY ARBITRARY. THE METHODS OF GOOD CONSTRUCTORS VARY WIDELY AND EACH ONE'S METHOD IS, IN HIS OWN OPINION, BEST. RIGIDITY, FINISH, AND ECONOMY ARE THE REAL ESSENTIALS.
DETAIL Nº 3.
THE REQUIREMENTS FOR DRESSERS ARE SO VARIED THAT THE HOUSEKEEPER SHOULD ALWAYS BE CONSULTED WITH REFERENCE TO THE REQUIREMENTS IN EACH CASE FOR KITCHEN UTENSILS, CUTLERY, SILVER, CHINA, TABLE LINEN, FOOD STUFFS, ETC.; ESPECIALLY IS THIS TRUE OF THE LOWER PART, WHERE THE SIZE AND ARRANGEMENT OF COMPARTMENTS AND DRAWERS, AND THE PLACING OF SHELVES CAN SELDOM BE MANAGED SATISFACTORILY WITHOUT CONSULTATION WITH THOSE WHO ARE TO USE THEM. SOME HOUSEKEEPERS WILL REQUIRE KNEADING BOARDS AND A PLACE FOR STORING DINING ROOM EXTENSION TABLE LEAVES IN THE DRESSERS.
IN THE FIRST DRESSER SHOWN ABOVE, THE ARRANGEMENT OF FLOUR BINS AND DRAWERS GIVES TOO LITTLE SHELF ROOM IN THE LOWER PART FOR MOST HOUSEKEEPERS, UNLESS THERE WERE PLACE ELSEWHERE FOR KITCHEN UTENSILS.
DETAIL Nº 4.
12" 6" 0 1' 2' 3'
SCALE (¾" TO 12") FOR SECTIONS A-A AND B-B.
1" 0 1" 2" 3" 4" 5" 6" 7" 8"
SCALE (3" TO 12") FOR DETAILS.
16" IS A GOOD CLEAR HEIGHT HERE.
DETAIL SECTION Nº 1 FOR GOOD WORK.
DETAIL SECTION Nº 1 FOR CHEAP WORK.
TILTING FLOUR BIN.
BROKEN LINES SHOW POSITION WHEN OPEN.
DRAWER PULL.
X Y
PIVOT HINGE.
DISTANCE X TO BE MORE THAN Y SO THAT WT. OF FLOUR WILL TEND TO KEEP BIN CLOSED.
2'10" IS A GOOD HEIGHT FOR LOWER PART OF DRESSER, BUT IT MAY BE FROM 2'6" TO 3'0".
SMALL BIN IN TWO COMPARTMENTS (SEE ELEVATION ABOVE) FOR CORN MEAL AND WHOLE WHEAT FLOUR.
DRAWER.
DETAIL SECTION Nº 5.
DETAILS OF CAST IRON PIVOT HINGES FOR TILTING FLOUR BINS.
SECTION ON LINE A-A.
SECTION ON LINE B-B.
IN SOME CASES A COMPARTMENT IS MADE TO RECEIVE A FLOUR BARREL AND THE TOP OF DRESSER FITTED WITH A LID OVER THE BARREL. THIS ARRANGEMENT IS LESS CONVENIENT AND NOT SO CLEANLY AS THE TILTING BINS HERE SHOWN.
THESE HINGES CAN BE EASILY AND CHEAPLY MADE AND THEY ALLOW THE BIN TO BE READILY LIFTED OUT FOR CLEANSING AT ANY TIME.
FLOOR OF DRESSER.
DETAIL Nº 6.
KITCHEN AND PANTRY DRESSERS.
PLATE XXXII

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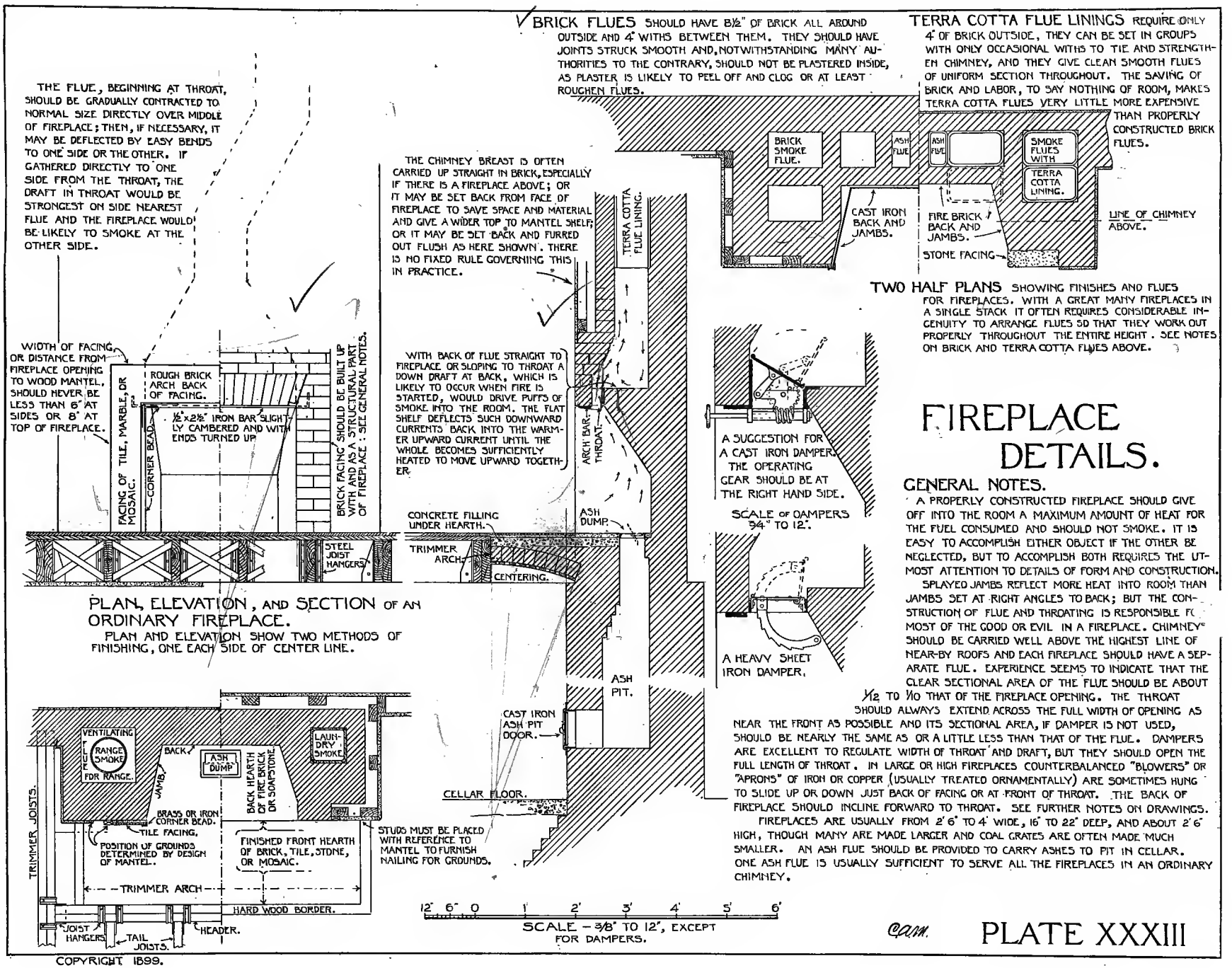
FIREPLACE DETAILS.


BRICK FLUES SHOULD HAVE 8½" OF BRICK ALL AROUND OUTSIDE AND 4" WITHS BETWEEN THEM. THEY SHOULD HAVE JOINTS STRUCK SMOOTH AND, NOTWITHSTANDING MANY AUTHORITIES TO THE CONTRARY, SHOULD NOT BE PLASTERED INSIDE, AS PLASTER IS LIKELY TO PEEL OFF AND CLOG OR AT LEAST ROUGHEN FLUES.
TERRA COTTA FLUE LININGS REQUIRE ONLY 4" OF BRICK OUTSIDE, THEY CAN BE SET IN GROUPS WITH ONLY OCCASIONAL WITHS TO TIE AND STRENGTHEN CHIMNEY, AND THEY GIVE CLEAN SMOOTH FLUES OF UNIFORM SECTION THROUGHOUT. THE SAVING OF BRICK AND LABOR, TO SAY NOTHING OF ROOM, MAKES TERRA COTTA FLUES VERY LITTLE MORE EXPENSIVE THAN PROPERLY CONSTRUCTED BRICK FLUES.
BRICK SMOKE FLUE.
ASH FLUE
ASH FLUE
SMOKE FLUES WITH TERRA COTTA LINING.
CAST IRON BACK AND JAMBS.
FIRE BRICK BACK AND JAMBS.
LINE OF CHIMNEY ABOVE.
STONE FACING
TWO HALF PLANS SHOWING FINISHES AND FLUES FOR FIREPLACES. WITH A GREAT MANY FIREPLACES IN A SINGLE STACK IT OFTEN REQUIRES CONSIDERABLE INGENUITY TO ARRANGE FLUES SO THAT THEY WORK OUT PROPERLY THROUGHOUT THE ENTIRE HEIGHT. SEE NOTES ON BRICK AND TERRA COTTA FLUES ABOVE.
THE FLUE, BEGINNING AT THROAT, SHOULD BE GRADUALLY CONTRACTED TO NORMAL SIZE DIRECTLY OVER MIDDLE OF FIREPLACE; THEN, IF NECESSARY, IT MAY BE DEFLECTED BY EASY BENDS TO ONE SIDE OR THE OTHER. IF GATHERED DIRECTLY TO ONE SIDE FROM THE THROAT, THE DRAFT IN THROAT WOULD BE STRONGEST ON SIDE NEAREST FLUE AND THE FIREPLACE WOULD BE LIKELY TO SMOKE AT THE OTHER SIDE.
THE CHIMNEY BREAST IS OFTEN CARRIED UP STRAIGHT IN BRICK, ESPECIALLY IF THERE IS A FIREPLACE ABOVE; OR IT MAY BE SET BACK FROM FACE OF FIREPLACE TO SAVE SPACE AND MATERIAL AND GIVE A WIDER TOP TO MANTEL SHELF; OR IT MAY BE SET BACK AND FURRED OUT FLUSH AS HERE SHOWN. THERE IS NO FIXED RULE GOVERNING THIS IN PRACTICE.
TERRA COTTA FLUE LINING.
WIDTH OF FACING, OR DISTANCE FROM FIREPLACE OPENING TO WOOD MANTEL, SHOULD NEVER BE LESS THAN 6" AT SIDES OR 8" AT TOP OF FIREPLACE.
ROUGH BRICK ARCH BACK OF FACING.
½"x2½" IRON BAR SLIGHTLY CAMBERED AND WITH ENDS TURNED UP
FACING OF TILE, MARBLE, OR MOSAIC.
CORNER BEAD.
BRICK FACING SHOULD BE BUILT UP WITH AND AS A STRUCTURAL PART OF FIREPLACE: SEE GENERAL NOTES.
WITH BACK OF FLUE STRAIGHT TO FIREPLACE OR SLOPING TO THROAT A DOWN DRAFT AT BACK, WHICH IS LIKELY TO OCCUR WHEN FIRE IS STARTED, WOULD DRIVE PUFFS OF SMOKE INTO THE ROOM. THE FLAT SHELF DEFLECTS SUCH DOWNWARD CURRENTS BACK INTO THE WARMER UPWARD CURRENT UNTIL THE WHOLE BECOMES SUFFICIENTLY HEATED TO MOVE UPWARD TOGETHER.
ARCH BAR.
THROAT.
A SUGGESTION FOR A CAST IRON DAMPER. THE OPERATING GEAR SHOULD BE AT THE RIGHT HAND SIDE.
SCALE OF DAMPERS 3/4" TO 12".
CONCRETE FILLING UNDER HEARTH.
ASH DUMP.
STEEL JOIST HANGERS.
TRIMMER ARCH.
CENTERING.
A HEAVY SHEET IRON DAMPER.
ASH PIT.
CAST IRON ASH PIT DOOR.
CELLAR FLOOR.
PLAN, ELEVATION, AND SECTION OF AN ORDINARY FIREPLACE.
PLAN AND ELEVATION SHOW TWO METHODS OF FINISHING, ONE EACH SIDE OF CENTER LINE.
VENTILATING FLUE
RANGE SMOKE
FOR RANGE.
BACK.
ASH DUMP
LAUNDRY SMOKE
JAMB.
BACK HEARTH OF FIRE BRICK OR SOAPSTONE.
BRASS OR IRON CORNER BEAD.
TILE FACING.
POSITION OF GROUNDS DETERMINED BY DESIGN OF MANTEL.
FINISHED FRONT HEARTH OF BRICK, TILE, STONE, OR MOSAIC.
STUDS MUST BE PLACED WITH REFERENCE TO MANTEL TO FURNISH NAILING FOR GROUNDS.
TRIMMER JOISTS.
TRIMMER ARCH
HARD WOOD BORDER.
JOIST HANGERS
TAIL JOISTS.
HEADER.
12" 6" 0 1' 2' 3' 4' 5' 6'
SCALE – 3/8" TO 12", EXCEPT FOR DAMPERS.

GENERAL NOTES.

A PROPERLY CONSTRUCTED FIREPLACE SHOULD GIVE OFF INTO THE ROOM A MAXIMUM AMOUNT OF HEAT FOR THE FUEL CONSUMED AND SHOULD NOT SMOKE. IT IS EASY TO ACCOMPLISH EITHER OBJECT IF THE OTHER BE NEGLECTED, BUT TO ACCOMPLISH BOTH REQUIRES THE UTMOST ATTENTION TO DETAILS OF FORM AND CONSTRUCTION.

SPLAYED JAMBS REFLECT MORE HEAT INTO ROOM THAN JAMBS SET AT RIGHT ANGLES TO BACK; BUT THE CONSTRUCTION OF FLUE AND THROATING IS RESPONSIBLE FOR MOST OF THE GOOD OR EVIL IN A FIREPLACE. CHIMNEYS SHOULD BE CARRIED WELL ABOVE THE HIGHEST LINE OF NEAR-BY ROOFS AND EACH FIREPLACE SHOULD HAVE A SEPARATE FLUE. EXPERIENCE SEEMS TO INDICATE THAT THE CLEAR SECTIONAL AREA OF THE FLUE SHOULD BE ABOUT 1/12 TO 1/10 THAT OF THE FIREPLACE OPENING. THE THROAT SHOULD ALWAYS EXTEND ACROSS THE FULL WIDTH OF OPENING AS NEAR THE FRONT AS POSSIBLE AND ITS SECTIONAL AREA, IF DAMPER IS NOT USED, SHOULD BE NEARLY THE SAME AS OR A LITTLE LESS THAN THAT OF THE FLUE. DAMPERS ARE EXCELLENT TO REGULATE WIDTH OF THROAT AND DRAFT, BUT THEY SHOULD OPEN THE FULL LENGTH OF THROAT. IN LARGE OR HIGH FIREPLACES COUNTERBALANCED "BLOWERS" OR "APRONS" OF IRON OR COPPER (USUALLY TREATED ORNAMENTALLY) ARE SOMETIMES HUNG TO SLIDE UP OR DOWN JUST BACK OF FACING OR AT FRONT OF THROAT. THE BACK OF FIREPLACE SHOULD INCLINE FORWARD TO THROAT. SEE FURTHER NOTES ON DRAWINGS.

FIREPLACES ARE USUALLY FROM 2'6" TO 4' WIDE, 16" TO 22" DEEP, AND ABOUT 2'6" HIGH, THOUGH MANY ARE MADE LARGER AND COAL GRATES ARE OFTEN MADE MUCH SMALLER. AN ASH FLUE SHOULD BE PROVIDED TO CARRY ASHES TO PIT IN CELLAR. ONE ASH FLUE IS USUALLY SUFFICIENT TO SERVE ALL THE FIREPLACES IN AN ORDINARY CHIMNEY.

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PLATE XXXIII